

## 4. EXISTING LANDUSE ANALYSIS-2020

Land is the habitat of man, and its wide use is crucial for the economic, social, and environmental advancement of all countries. Land is partitioned for administrative and economic purposes, and it is used and transformed in a myriad way. Land use is the use of land made by man. It is broad and important term used to classify land according to its use. Land use is commonly used to refer the spatial distribution of functions in each area. The study of land use holds a very significant place where a particular settlement can be recognized as a town depends on its functional structure. The functional activity can be regarded as the main regions for the growth of an urban centre. The main purpose of land use study is to provide framework for the development of a particular area. it gives us an idea about the proportion of various types of land.

Landuse give an accurate picture of an urban area which is having a great significance for future planning. The main purpose of land use classification is to provide framework for the development of a particular area. The need for studying the land use aspect is elaborated as follows: To know the arrangement of various parts of town put to different

uses such as residential, commercial, industrial etc. To provide standardize distribution of land use. Land use study provides the framework for the development of a particular area and direction of development. It gives us an idea about the proportion of various types of use of land.

As part of the preparation of GIS Based Master Plan - 2045, an extensive existing land use survey was carried out for the entire Nagaon Planning Area.

The Existing Land Use was updated based on ground reality on the scientific base map prepared with the help of Satellite Image and Revenue records like village level cadastral sheets, Field Measurement Book sheets and Town Survey Sheets. The Nagaon Planning Area is administratively divided into two entities, Urban and Rural. Urban area comprises Municipal Board area, 2 Census Towns and 3 Out Growths. and Rural comprises 76 Villages. This chapter presents the existing landuse analysis, 2020 for urban, rural, and overall planning area. Further the existing land use analysis of the proposed conurbation area is also discussed to understand the current scenario of the new conurbation area.

### 4.1 CONURBATION AREA

The Conurbation area is a continuous urban area comprising of towns and their outgrowths merged with each other due to physical expansion and population growth. In the case of Nagaon, conurbation area includes one municipality area namely Nagaon Municipal Board, 3 Census Towns (Morongial, Chota haibor and Domorguri) and 1 Outgrowth area (Kachalu Khowa). The total

Conurbation area is 19.44 sq.km, out of which NMB comprise 12.33 sq.km whereas OG and CTs comprises 7.11 sq.km. area. The detailed existing land use analysis of conurbation is presented in table 50. NMB have Kachalu khowa (OG) on the South-east, Dimorguri (CT) is also situated in in the suth east part & Morongial (CT) and chhota Haiborgaon (CT) in east.

Table 50 Details of Conurbation Area

Sr. No	Description	Details
1	Area	19.44 sq.km.
2	Gross Density	7638 person / square km. (76 pph)
3	Net Density	12670 person / square km (126 pph)
4	Loaction	City Centre
5	Major Landmarks	Nagaon Railway Station, Haiborgaon Railway Station, Haiborgaon Bazaar, Narul Amin Stadium, Nehrubali Stadium, Nagaon college, Central Jail, Natun Bazaar, Bara bazaar, Dist. Library, Dist. Court - Nagaon, Kolong River and Morikolong water body.

One of the predominant Landmark in the NMB is the AT road market area which lies in the centre of the NMB area, along with this market, Nagaon College, Govt. boy's hostel, Church field, Nagaon Baptist Church, The Natun Bazaar and small shops are situated along AT road. The dist. Court, dist. Library and DC building are situated on the adjoining road of AT road. The Haiborgaon railway station and the Haiborgaon bazaar are the core areas in NMB. The river Kolong have major significance in the town and many art and culture institutions are setup along the bank, Like Bamboo museum, Khagen Manhanta Auditorium, Nagaon circuit house, Central jail, Nagaon police reserved playground. The Bara Bazaar in Nagaon started from GNB road to Medical

road ending at Civil Hospital. The existing land use analysis chart for urban area - 2020 is presented in figure 40.

In urban area, 10.50 sq.km of land is under residential use and it is the predominant land use in this region. Traffic & Transportation land use occupies 1.02 sq.km of area in urban area. Vacant land use is around 2 sq.km and Waterbody is 1.0 sq.km, agricultural land use is 1.6 sq.km of the urban area. The Public & Semi-Public land use covers 0.2 sq.km in the urban area. The commercial land use in the urban area is occupying 0.5 sq.km, mixed landuse is 0.08 and industrial landuse is observed 0.11 sq.km. The Existing land use Map - 2020 for the entire urban area is illustrated in the figure.

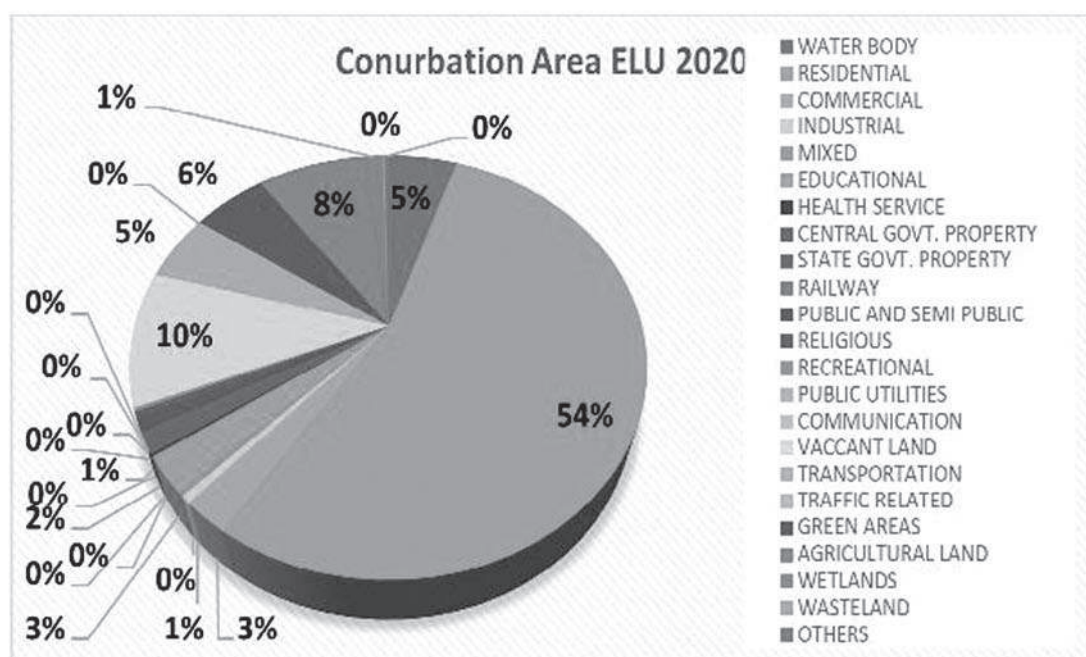


Figure 40: Conurbation Area ELU 2020



Figure 41: Existing Conurbation Land Use Map

#### 4.1.1 RESIDENTIAL

The residential land use is the predominant use in urban area, and it covers 10.50 sq km of area which is around 53.99 % of the total area of the Conurbation area. Residential use is equally distributed around the Nagaon town, except in northern centre part around Kolong river. The area between ward 9 and ward 7 have minimal residential use. It is oldest part of Nagaon town just adjacent to ward 1. The Kachulu Khowa (OG) have very less residential use in the south-west part of the Nagaon conurbation area. The census towns i.e., Morongial, Chota Haibor and Dimoruguri have contributed to the residential use.



Figure 42: Residential map of Conurbation area

#### 4.1.2 COMMERCIAL

The commercial land use in the urban area accounts to 2.57% (0.5 sq.km.) of the total area of the Conurbation. The CBD of the Nagaon region is the major contributor for the commercial land use in this Municipality. Other than the CBD, commercial land use is observed around the Morikolong river, southern part Nagaon town which is the Chota-Haibor, and Morikolong junction. Some new commercial areas in the northern part of Nagaon town i.e., Natun bazaar near ward 10 and 9. Predominant commercial use is found on both the sides of Haiborgaon market and Decapatty market area.





Figure 43: Commercial map of conurbation area

### 4.1.3 INDUSTRIAL

The Industrial Land use covers around 0.11 sq.km of the Urban area which accounts to 0.57% of the total area of the conurbation. Out of this, major portion is under Ward 20, which is Haiborgaon market, currently functional, and there are some areas in northern part of the market along Laokhowa road.



Figure 44: Industrial land use in Conurbation area

The Public & Semi-public Landuse in the urban area is about 0.2 sq.km which is around 1.03 % of the total area of the Conurbation. The Nagaon town accommodates several government offices like DC Office, Cantonment, District Court, Circuit House, Legislative Assembly, Department of Revenue, Public Works Department etc. Further, it has been observed that there are good number of religious buildings like Temples, Churches & Mosques which contributes to the Public & Semi-Public landuse of the Conurbation area.

Figure 45: Public and semi-public area in Conurbation area

The recreational land use within the urban area accounts to 0.05 sq.km which is around 0.26% of the total area of the Conurbation. The important recreational sites within this area are Marar Park in northern part of Town, Narul amin stadium, the largest indoor stadium in the Nagaon and Nagaon town graveyard in the centre of the city.





Figure 46: Open space in Conurbation area

#### 4.1.6 TRAFFIC & TRANSPORTATION

Traffic & Transportation covers 1.02 sq.km which is around 5.24 % of the total area of Conurbation. Large land parcels coming under the traffic & transportation land use in this region is Railway Station and ASTC bus stand. Major roads within the urban area are Haiborgaon road and AT road.

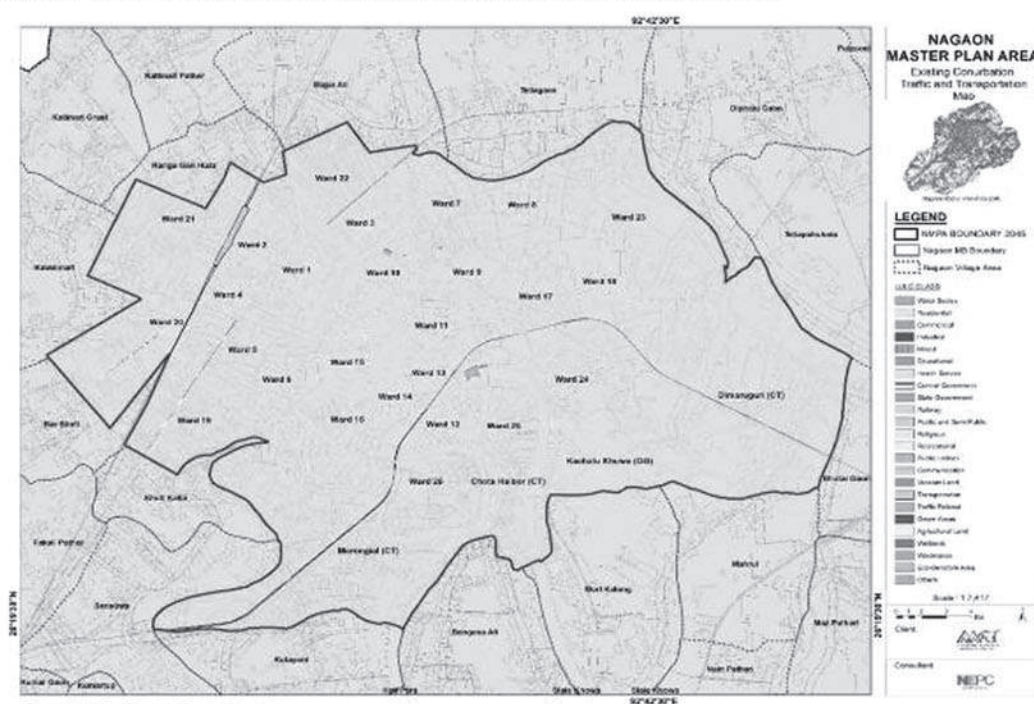


Figure 47: Traffic and Transportation

#### 4.1.7 VACANT

In urban region around 2 Sq.km of land is vacant as on year 2020, which accounts for 10.28% land of the total area. Major vacant parcels are located in the census town Dimoruguri and other are near ward no. 21 and 22. In Dimoruguri these land parcels are low lying areas around the wetlands. These lands can be utilized for addressing the future needs of the planning area for the plan period.



Figure 48: Vacant space in Conurbation Area

#### 4.1.8 PROTECTED & UNDEVELOPABLE USE

Nagaon urban area has 1.25 sq km of area falling under protected and undevelopable land use zone. Majority of the area falling under this category is covered by wetlands and Kolong and Morikolong river.

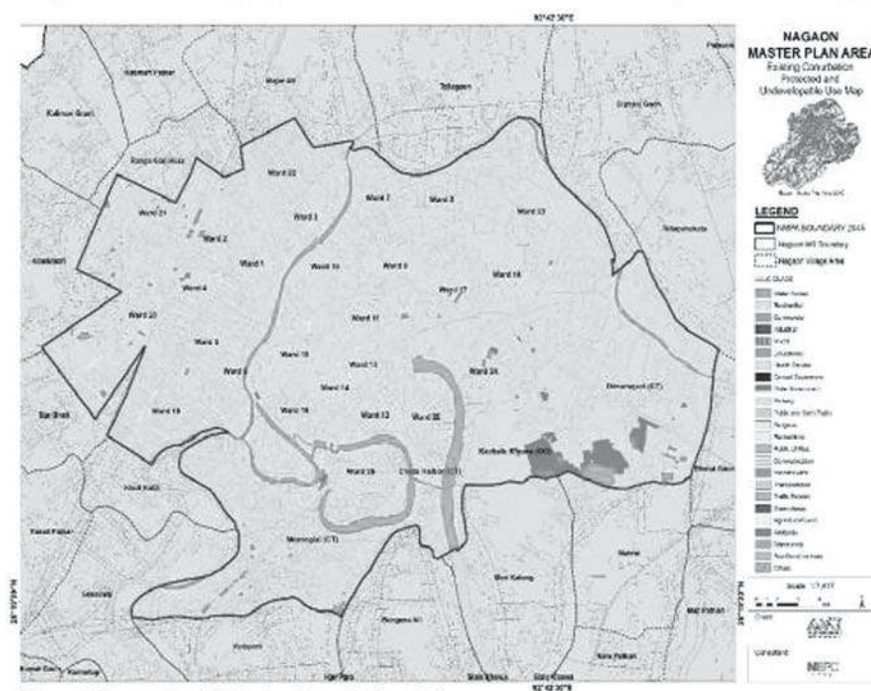


Figure 49: Protected and Undevelopable use in Conurbation area

## 4.2 RURAL AREA

Nagaon Planning Area accommodates total 76 villages as rural area. The total area covered by rural region is 128.54 sq.km. The detailed existing land use analysis of Nagaon Rural Area - 2020 is presented in table 51.

Table 51 Details of Rural Area Statistics

Sr. No	Description	Details
1	Area	128.54 sq.km.
2	Gross Density	1168 person / square km. (11 pph)
3	Net Density	1534 person / square km. (15 pph)
4	Location	South and East of City Centre
5	Major Landmarks	Ranthali beel, Thakoli beel, Samaluguri naamgarh, Uria-gaon Shiv Mandir, Borghat point, Birha Babejia school, Birha Babejia Naam Garh, Nagaon Medical College and Karchung Sattrra.

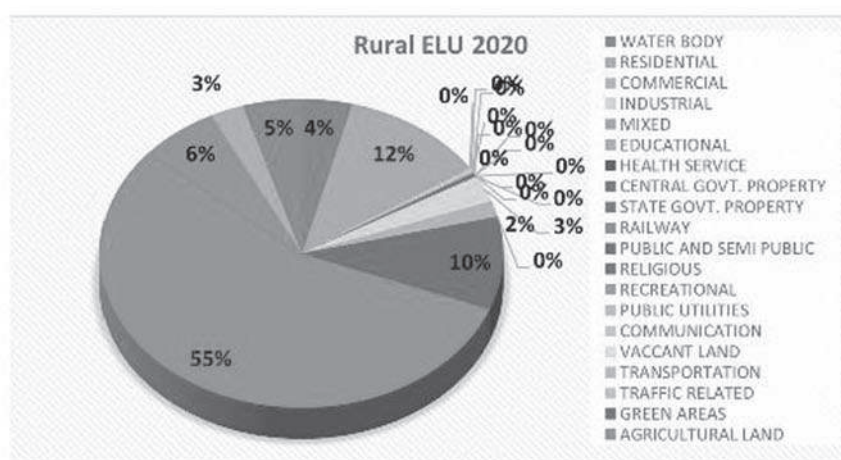


Figure 50: Rural Area land use breakup

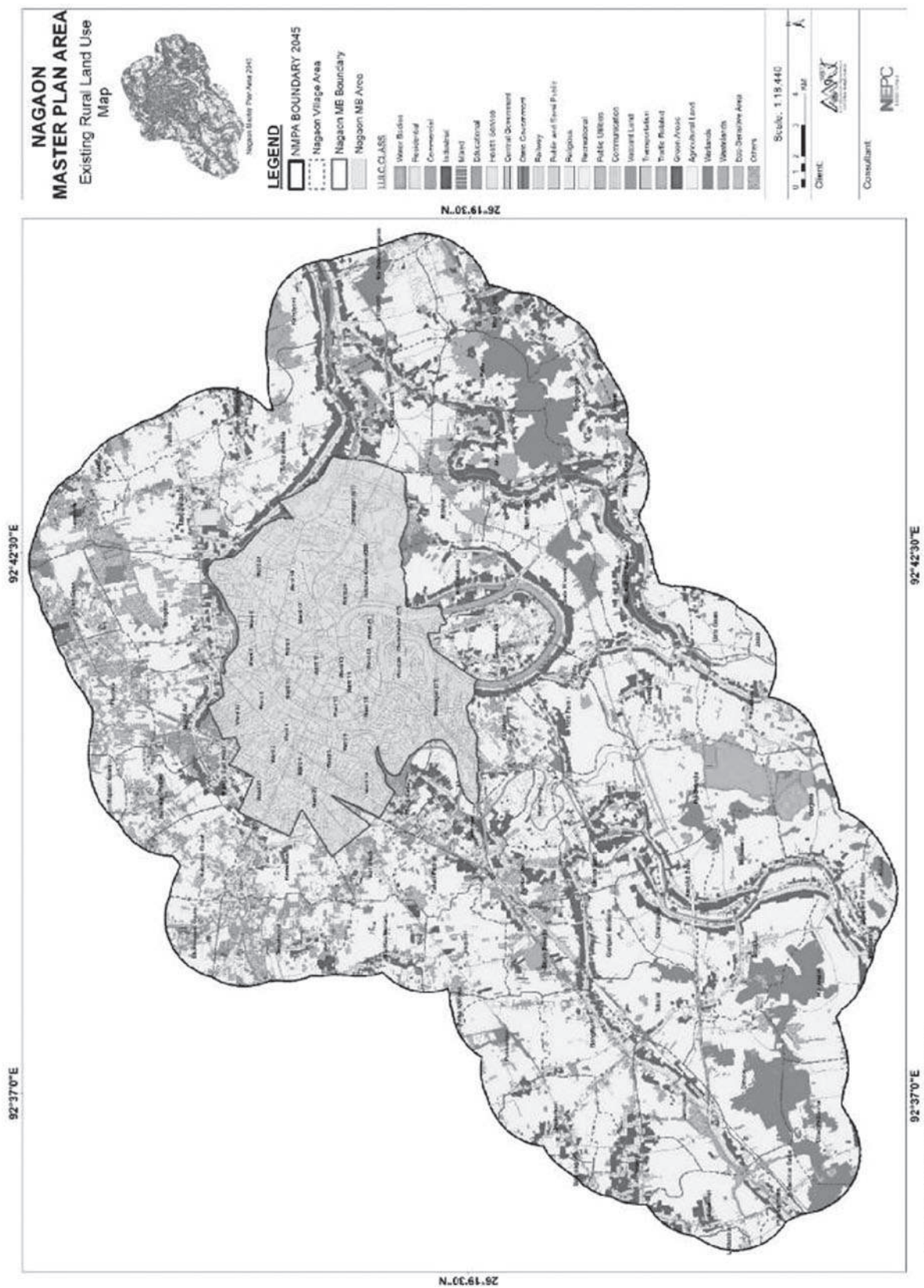
One of the predominant Landmark in the rural Nagaon is the Ranthali beel, Ranthali wetlands is regional picnic spot, many migratory birds come here in different season. This Ranthali is not only famous for its wetland but also for its' jewellery making art. Similarly, the Thakoli beel is also witnessed many migratory birds. The Sattras are the famous places and a cultural institute around many villages of Nagaon town.

The existing land use analysis chart for rural area - 2020 is presented in figure 53. In urban area, 71.3 sq.km of land is under Agricultural use and it is the predominant land use in this region. Green area covers 12.5 sq.km of area. Residential area occupies 14.8 sq.km of land and Industrial land use occupies 0.36 sq.km of area in rural area. Wetland covers 8 sq.km, Waterbody occupies 5.16 sq.km area and Vacant land use is around 3.6 sq.km. Commercial land use is 0.38 sq.km of the rural area. The Public & Semi-Public land use covers 0.08 sq.km in the rural area. The Mixed landuse is 0.039 sq.km and recreational landuse is observed 0.04 sq.km. The existing land use Map - 2020 for the entire Rural area is illustrated in figure 51.



Table 52 Existing Land use in Rural area

Sr. No.	Landuse Type	Area (Sq Km)	Percentage (%)
1	Water Body	5.16	4.01
2	Residential	14.8	11.51
3	Commercial	0.38	0.30
4	Industrial	0.36	0.28
5	Mixed	0.039	0.03
6	Educational	0.24	0.19
7	Health Service	0.13	0.10
8	Central Govt. Property	0.0037	0.00
9	State Govt. Property	0.13	0.10
10	Railway	0.0085	0.01
11	Public and Semi Public	0.08	0.06
12	Religious	0.086	0.07
13	Recreational	0.04	0.03
14	Public Utilities	0.007	0.01
15	Communication	0.009	0.01
16	Vaccant Land	3.6	2.80
17	Transportation	2	1.56
18	Traffic Related	0.13	0.10
19	Green Areas	12.5	9.72
20	Agricultural Land	71.3	55.47
21	Wetlands	8	6.22
22	Wasteland	3.5	2.72
23	Others	6.04	4.70
<b>Total</b>		<b>128.54</b>	<b>100</b>



### 4.2.1 RESIDENTIAL

The residential land use is the predominant use in rural area, and it covers 14.8 sq km of area which is around 11.51 % of the total area of the rural Nagaon. Residential use is dominant on the Southern-east side and east part of the NMPA.

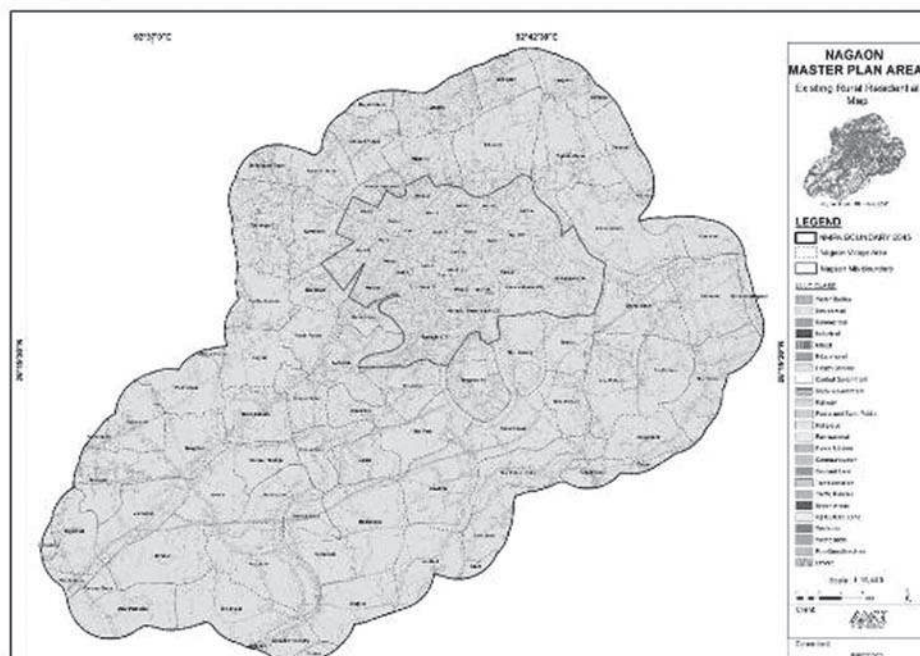


Figure 52: Residential Land use in Rural Area

### 4.2.2 COMMERCIAL

The commercial land use in the rural Nagaon accounts to 0.3% (0.38 sq.km.) of the total area of the villages. Major commercial area observed along with the Morikolong water body, after entering from Borghat point towards Civil hospital gate, Railway crossing.

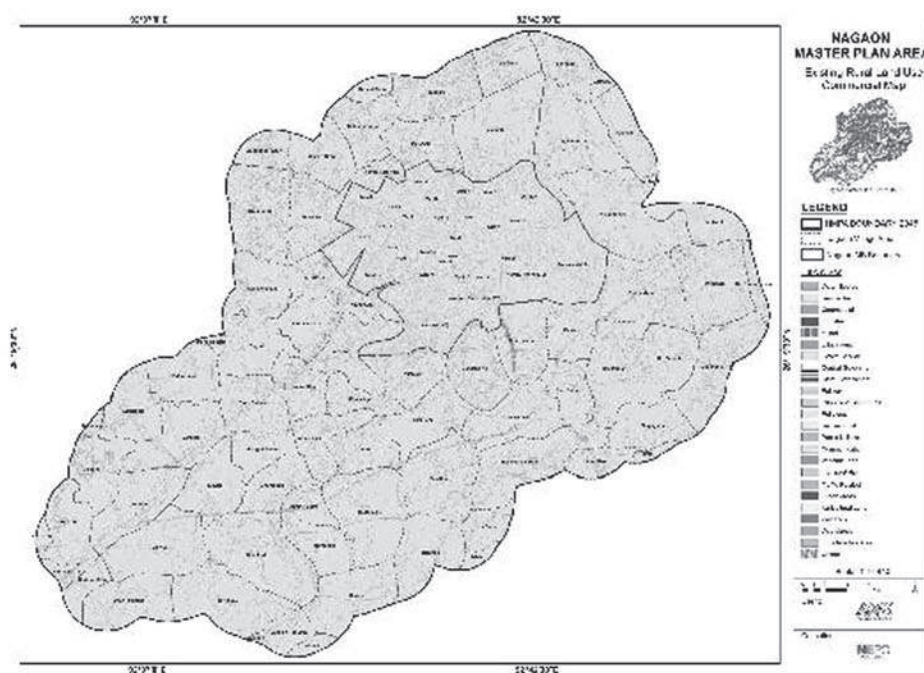


Figure 53: Industrial Land Use in Rural Area

### 4.2.3 INDUSTRIAL

The Industrial Land use covers around 0.36 sq.km of the rural area which accounts to 0.28% of the total area of the Villages. Out of this, HM and Hanuman industries which is currently functional, and this provides good employment opportunity for economic development of the region.

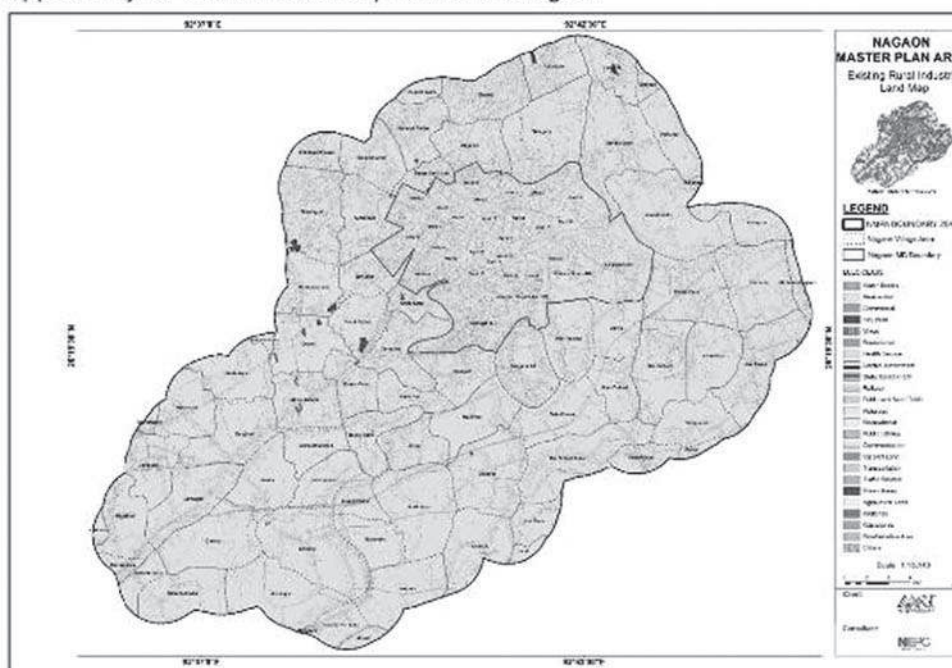


Figure 54: Industrial Land Use Rural Area

### 4.2.4 PUBLIC & SEMI-PUBLIC

The Public & Semi-public Landuse in the rural area is about 0.08 sq.km which is around 0.06 % of the total area of the village area. .

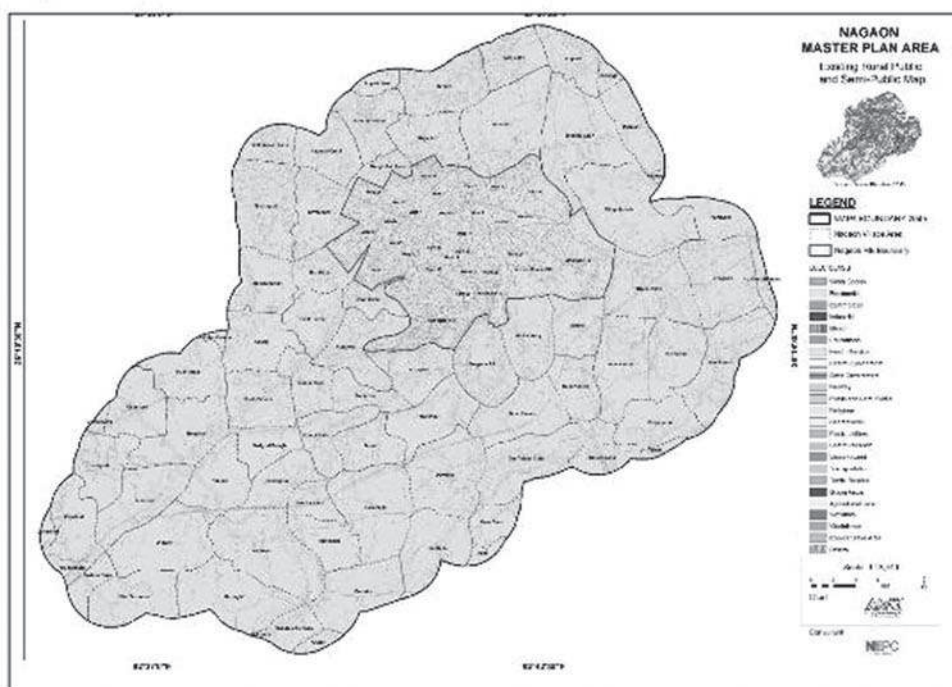


Figure 55: Public and Semi Public In Rural Area

The recreational land use within the rural area accounts to 0.04 sq.km which is around 0.03% of the total area of the region. The important recreational sites within the rural area are Ranthali and Fakoli beel

Figure 56: Open Spaces in Rural Area

Traffic & Transportation covers 2.13 sq.km which is around 1.66 % of the total area of rural land cover. Major portions are covered under National and State highways.

Figure 57: Traffic and Transportation in Rural Area

Figure 59: Protected and Undevelopable Use in Rural Area

### 4.3 NAGAON PLANNING AREA - 2020

The overall existing land use analysis chart for Nagaon Planning Area - 2020 is shown in figure 60. Agricultural land use occupies 49% of the total area of the Nagaon Planning Area, and residential land use is spread over 17% of total land area of the planning area. About 3.78% of the planning area is currently lying vacant, 2.13% is under traffic and transportation use, 0.32% is in industrial land use category and 0.19% of the Nagaon Planning Area land is under Public and Semi-Public land use category.

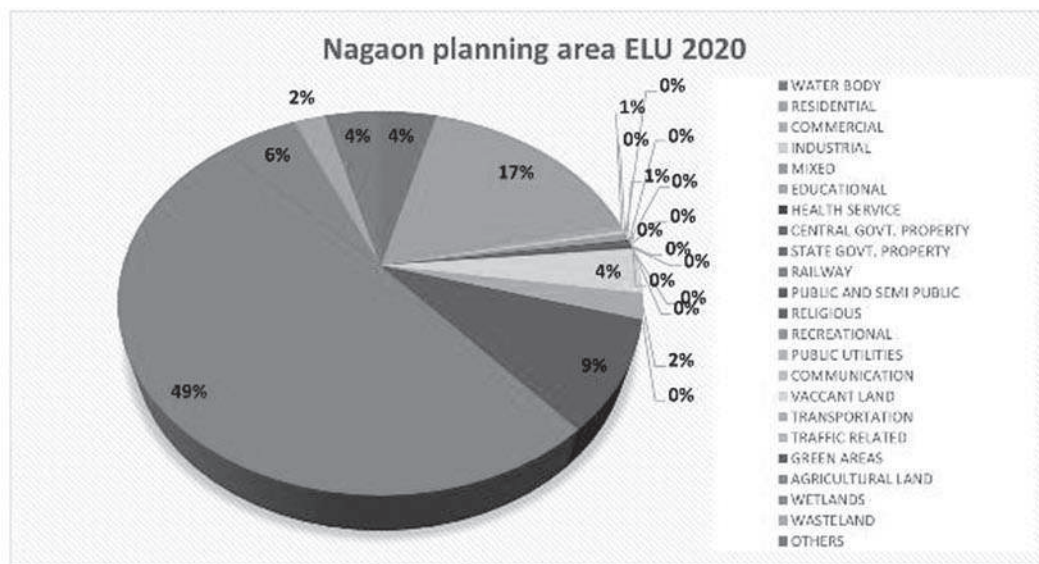


Figure 60: Landuse breakup of Nagaon Planning Area - 2020

Details of Existing Land Use analysis-2020 is shown in table 53, agricultural land use being the predominant land use in the planning area occupies 72.9 sq.km area, Water body or Protected and Undevelopable use is spread over 14.41 sq.km, residential use covers 25.3 sq.km and 5.6 sq.km is currently vacant. Priority should be given to utilize the vacant land to address the future residential requirements of the planning area and compacting the development should be kept as a key point in the preparation of GIS Based Master Plan-2045 to avoid sprawl.

Table 53 Existing Landuse Analysis for Nagaon Developable Area

Sr. No.	Landuse Type	Area (Sq Km)	Percentage Area (%)
1	Water Body	6.16	4.16
2	Residential	25.3	17.10
3	Commercial	0.88	0.59
4	Industrial	0.47	0.32
5	Mixed	0.119	0.08
6	Educational	0.77	0.52
7	Health Service	0.17	0.11
8	Central Govt. Property	0.0097	0.01
9	State Govt. Property	0.43	0.29
10	Railway	0.0105	0.01
11	Public and Semi Public	0.28	0.19
12	Religious	0.176	0.12
13	Recreational	0.09	0.06
14	Public Utilities	0.01	0.01
15	Communication	0.017	0.01
16	Vaccant Land	5.6	3.78
17	Transportation	3	2.03
18	Traffic Related	0.15	0.10
19	Green Areas	13.57	9.17
20	Agricultural Land	72.9	49.26
21	Wetlands	8.25	5.57
22	Wasteland	3.53	2.39
23	Others	6.1	4.12
<b>Total</b>		<b>148.00</b>	<b>100</b>

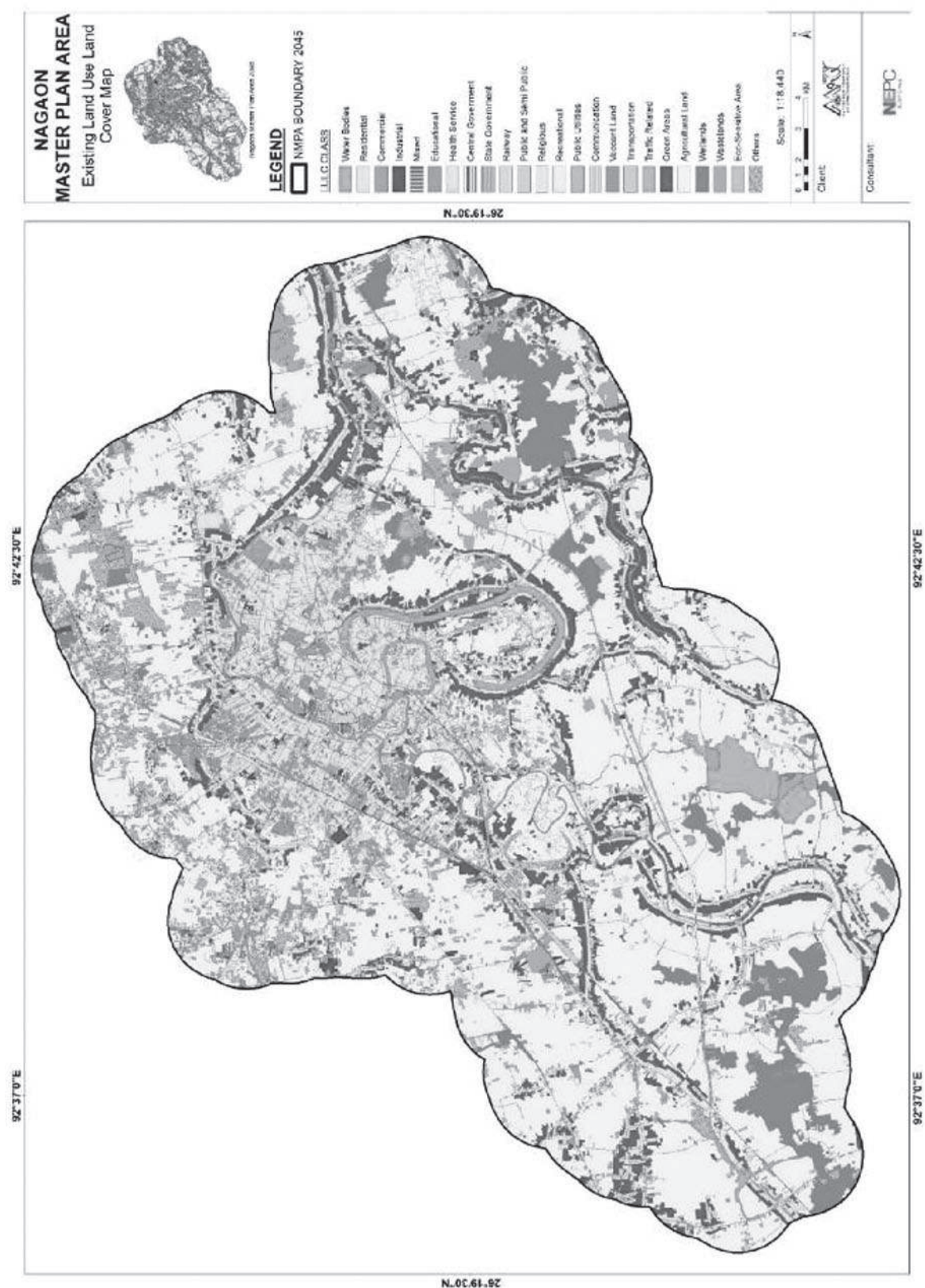


Figure 61: Nagaon Planning Area 2020

Table 54 Existing Landuse Analysis for Nagaon Planning Area-2020

Sr. No.	Landuse Type	Conurbation Area (Sq Km)	Rural Area (Sq Km)	Entire DMPA (Sq Km)
1	Water Body	1	5.16	6.16
2	Residential	10.5	14.8	25.3
3	Commercial	0.5	0.38	0.88
4	Industrial	0.11	0.36	0.47
5	Mixed	0.08	0.039	0.119
6	Educational	0.53	0.24	0.77
7	Health Service	0.04	0.13	0.17
8	Central Govt. Property	0.006	0.0037	0.0097
9	State Govt. Property	0.3	0.13	0.43
10	Railway	0.002	0.0085	0.0105
11	Public and Semi Public	0.2	0.08	0.28
12	Religious	0.09	0.086	0.176
13	Recreational	0.05	0.05	0.10
14	Public Utilities	0.003	0.007	0.01
15	Communication	0.008	0.009	0.017
16	Vaccant Land	2	3.6	5.6
17	Transportation	1	2	3
18	Traffic Related	0.02	0.13	0.15
19	Green Areas	1.07	12.5	13.57
20	Agricultural Land	1.6	71.3	72.9
21	Wetlands	0.25	8	8.25
22	Wasteland	0.03	3.5	3.53
23	Others	0.06	6.04	6.1
<b>Total</b>		<b>19.44</b>	<b>128.56</b>	<b>148</b>

The Existing Land Use area for entire NMPA as well as for two categories is presented in the table above. As it is observed from the table that in conurbation area, there is very less vacant area available which indicates that Nagaon town has no further scope of development. Thus, for the town the focus is to conserve the existing buildings or redevelopment in conformity with the heritage importance and special regulations for urban area.

While concentrating on the rural area it has good amount of Agriculture and Vacant area which opens the scope for development in the area. Additionally, it has large amount of area falling under residential and Public Semi-Public categories making it clear that the inflow of people is already there due to various reasons. However, conurbation area is located near to CBD and includes area which are observing good amount of development, it is envisaged that the conurbation area will have the highest development in the upcoming years.

As observed from the table above, in the areas outside of conurbation, most of the land is under agricultural use as this is rural area. Thus, around 60% of the area falls under agriculture use and wetlands followed by waterbodies. Very less area is covered for residential, commercial, industrial etc.

## 5 HOUSING

Housing sector is employment intensive; it generates employment during its construction period and, during its life for maintenance purpose. The United Nations Centre for Human Settlements (UNCHS) uses a broader term "Settlement conditions" because it extends to all those components of the physical environment with which an individual or a community comes into contact and which are used on a regular basis for the whole range of human activities - the individual dwelling and its related services, the dwelling's immediate surroundings, community facilities, transportation,

and communications network and so on. This section of the report reviews the housing profile in the project area. Census 2011 housing data had used to analyze the profile. Analysis of the Nagaon urban area includes Kachalukhowa (OG) Nartam Gaon (OG) Chota Haibor (CT) Dimaruguri (CT) and Morongial (CT)

In addition, number of household data of other rural centers falling within the project area is available but rest of the housing parameters are available only for Nagaon MB and OG area; hence, not all housing parameters were analyzed for other rural centers then NMB.

### 5.1 EXISTING HOUSING SCENARIO

The word "Housing" means dwelling units in terms of quality and quantity alone. Housing or quality of life is more dependent on some elements of housing areas such as disposition of various working areas, layouts development of land, provision of roads, water supply system, sewerage, drainage, and provision of basic amenities like shops, schools, parks and playgrounds etc. the urban form and character emerges from the quality of housing areas and inter relationship of housing areas with work center and other non-residential areas.

In today's context, perhaps the most important issue for urban dwellers is to find an appropriate place to live. It is observed that the price of all kind of housing have been increasing exorbitantly, which indicate that the investment in housing sector is unable to match pace with the increasing

demand for housing. Rapid urbanization and rural to urban migration have led to a substantial shortage of housing in the region. The direct result of this is the concentration of informal settlements in the city. Given that the shortage in housing is concentrated at the bottom of the pyramid, the sector can play an important role in the socioeconomic development.

Moreover, with the rapid urbanization and significant increase in the housing demand, housing sector is the engine of immense potential of giving a push to the economy because of its link with the employment generation and livelihood. Therefore, provision of housing can make a significant difference in income of families, both in rural and urban areas. The number of households in Nagaon Planning Area for year 2011 is mentioned further.



Table 55 Ward wise household data

Ward No.	Population 2011	No. of HHs	Housing Size
1	1705	350	4.9
2	4587	974	4.7
3	4151	1035	4
4	2725	510	5.3
5	4456	1038	4.2
6	6873	1565	4.3
7	3022	748	4
8	3858	970	3.9
9	2429	583	4.1
10	1831	449	4
11	4989	1108	4.5
12	4991	1138	4.3
13	2327	487	4.7
14	3117	706	4.4
15	2641	567	4.6
16	3563	861	4.1
17	4583	1013	4.5
18	5414	1199	4.5
19	3377	815	4.1
20	15240	3221	4.7
21	2564	561	4.5
22	5149	1200	4.2
23	7308	1753	4.1
24	6485	1335	4.8
25	5336	1207	4.4
26	5001	1090	4.5
<b>TOTAL</b>	<b>117722</b>	<b>26483</b>	<b>4.4</b>

(Source: Census of India, 2011)

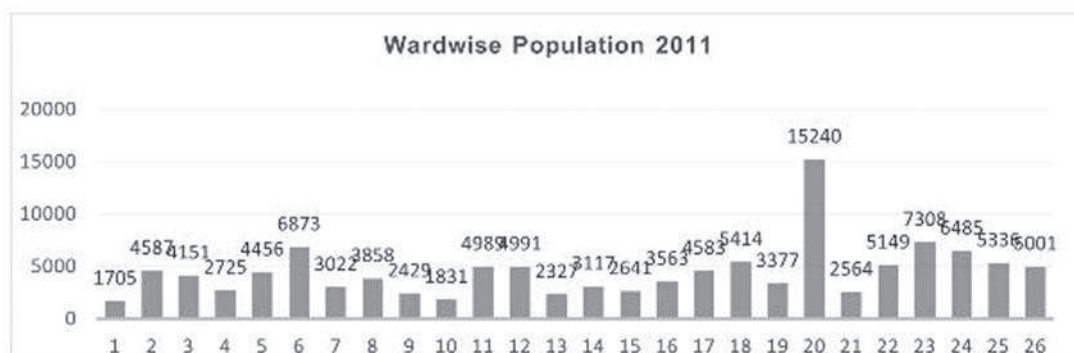


Figure 62: Ward wise population

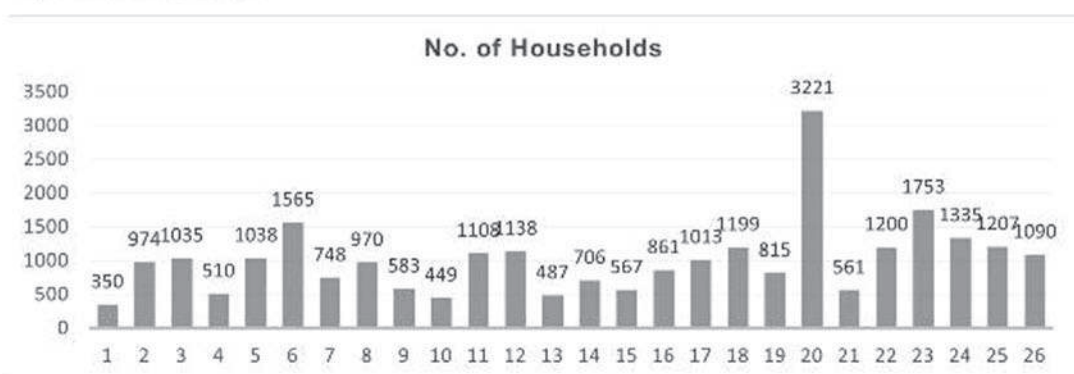


Figure 63: Ward wise households

The table 55 depicts the ward wise population and total number of households in Nagaon Municipal Board area. They are highest in Ward no. 20 followed by Ward no. 23 and 6. The minimum number of households are in ward no. 1. Based on the population and households, the housing size is calculated. The overall housing size is 4.4 which is calculated from the ward wise total population and total number of households. The maximum housing size observed in Ward no. 1 and 24 which is 4.9 and 4.8, respectively. The minimum housing size is 3.9 and 4 which is in ward numbers 8 and 10.

Table 56: No. of Household for OG/CT area

Name of OG/CT	Population 2011	No. Of Household	Housing Size
Kachalukhowa (OG)	2917	608	4.7
Nartam Gaon (OG)	989	229	4.3
Chota Haibor (CT)	6315	1379	4.5
Dimaruguri (CT)	10235	2170	4.7
Morongial (CT)	10318	2154	4.7
<b>Total</b>	<b>30774</b>	<b>6540</b>	<b>4.7</b>

(Source: Census of India, 2011 and Consultant Compilation)

Table 56 describes the existing households in Outgrowth and Census Town area as per Census 2011 and from this the housing size is been calculated which turns out to be 4.7 on an average. Housing size observed maximum in Kachalukhowa (OG), Dimarugiri (CT) and Morongial (CT) which is 4.7 followed by Nartam Gaon (OG) which is 4.3.

Table 57: of Households for Rural area

Name	Population 2011	No. Of Household 2011	Housing size
Existing Nagaon MP Rural Area	1,50,184	31,308	4.7

(Source: Census of India, 2011 and Consultant Compilation)

The population in GIS based Nagaon MPA's rural area is 1,50,184 and the total number of households are 31,308. The Household size observed in this region is 4.7

### 5.1.1 HOUSEHOLDS IN NMPA

In NMPA, the area wise household details are as mentioned below

Table 58: No. of households in Nagaon Planning area

Sr. No	Name of Area	Population	No. Of Household	Percentage	Household size
1	Nagaon MB (26 Wards)	117722	26483	41.16%	4.4
2	2 Out growths	3906	837	1.30%	4.5
3	3 Census town	26868	5703	8.86%	4.6
4	76 villages	150184	31308	48.66%	4.8
<b>Total</b>		<b>298680</b>	<b>64331</b>	<b>100%</b>	<b>4.6</b>

(Source: Census of India, 2011 and Consultant Compilation)

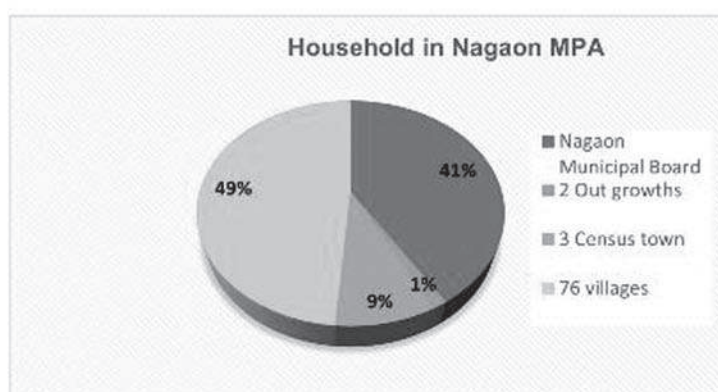


Figure 64: Household break up

The table 58 indicates total population in NMPA is 298680 and the No. of households are 64331 which further leads to the overall household size 4.6. The maximum population is in Nagaon MB area which is 117722 and contributes 41.16 % of total NMPA. The lesser number of households observed in OG and CT area which is 1.30% and 8.86% respectively.

### 5.1.2 SIZE OF THE HOUSEHOLD

The 1991 Census shown that more than half of the households in the region were medium sized with an average member of 3 to 5. According to census 2011 the medium sized households (3-4) is predominant because of the increasing trend towards nuclear households. Since the trend in nuclear households and rapid urbanisation are at higher rate, there will be considerable pressure on housing in coming future. The overall household size of the Nagaon Planning Area is 4.6. HH size is lowest in Nagaon Municipal which is 4.4 and highest in rural areas which is 4.8

### 5.1.3 HOUSING TYPOLOGY

The 'Housing Typology' is the complex nature of regional contexts as places to formulate human habitation. Investigating the interdependencies evolving between a building's entity and its territory can contribute in the future to development of region. Permanent houses are those with wall and roof made of permanent materials. Wall can be made of G.I., Stone packed with Mortar, Stone not packed with Mortar, Metal, Asbestos sheets, burnt bricks, Stone or Concrete. Roof can be made of Hand-made tiles, Machine made tiles, Slate, G.I., Metal, Asbestos sheets, Brick, Stone or Concrete. Semi-permanent houses are those in which either wall or roof is made of permanent material and other is made of temporary material. Temporary houses are the ones with wall and roof made of temporary material. Wall can be made of Grass, Thatch, Bamboo etc., Plastic, Polythene, Mud, Unburnt brick or Wood. Roof can be made of Grass, Thatch, Bamboo, Wood, Mud, Plastic or Polythene.

Table 59 reveals the number of households living in permanent, semi-permanent and temporary houses within the NMPA. Out of 64331 households, 51.73% are permanent, 44.17 % are semi-permanent and 4.07% are temporary houses.

Table 59 Housing Typology of NMPA

Particular		Permanent	%	Semi - permanent	%	Temporary	%
Urban	Nagaon MB + OG	25299	63.45	14073	35.29	498	1.25
	Census Towns (CT)	2694	40.41	3845	57.68	127	1.9
Rural	Rural areas	5285	29.7	10516	59	1994	11.2
<b>Total</b>		<b>33278</b>	<b>51.73</b>	<b>28434</b>	<b>44.17</b>	<b>2619</b>	<b>4.07</b>

(Source: Census of India, 2011 and Consultant Compilation)

The figure 65 indicates that around 51.73% are permanent households, 44.17% are semi-permanent and 4.07% of dwelling units are temporary units in Nagaon urban area. In rural areas, the percentage of permanent housing is 30%, semi-permanent housing is 59% and temporary housing units are around 11%. This clearly indicates that focusing the housing development in rural areas is of importance in order to provide basic need of the people.

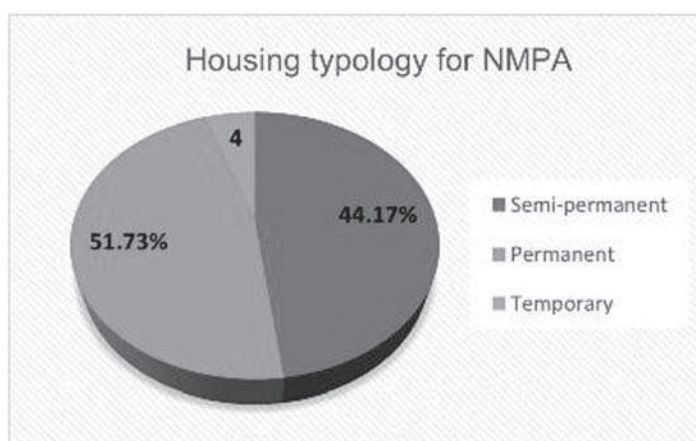


Figure 65: Housing typology in urban area

### 5.1.4 HOUSING CONDITION

Housing Condition includes the study of condition of housing based on type of structure i.e., permanent/semi-permanent, physical infrastructure, mass space relationship, condition of the material used for walls and floors etc. It is important to be studied because it indicates the efficiency and sustainability of the housing stock, whether the houses are liveable or not. Based on the above said parameters, the condition of houses has been segregated and the analysis is done as good, livable and dilapidated houses.

Table 60 Housing condition

Area	Residence (%)				Residence-cum-other use (%)			
	Total	Good	Livable	Dilapidated	Total	Good	Livable	Dilapidated
Assam	62,72,151	33%	56%	11%	95,144	30%	62%	8%
Nagaon District	5,53,106	30%	57%	13%	7,751	27%	62%	11%
NMB+OG	27,855	55%	40%	5%	660	52%	43%	5%

(Source: Census of India, 2011 and Consultant Compilation)

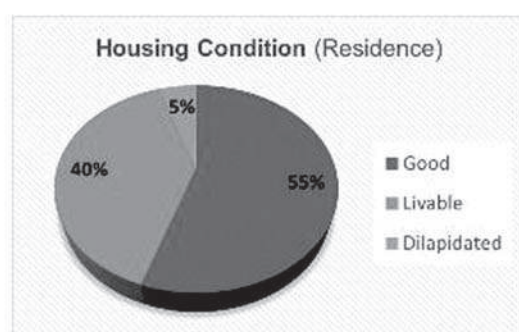
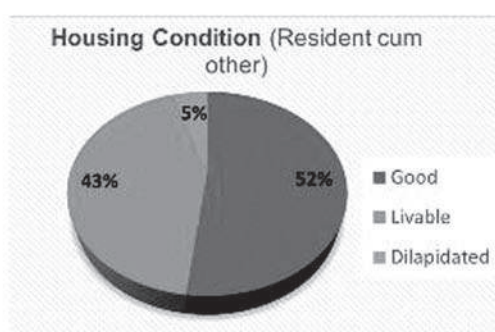


Figure 66: Housing condition



(Source: Census of India, 2011 and Consultant Compilation)

Table 61 slum housing condition

Area	Residence (%)				Residence-cum-other use (%)			
	Total	Good	Livable	Dilapidated	Total	Good	Livable	Dilapidated
Assam	62,72,151	33%	56%	11%	95,144	30%	62%	8%
District	5,53,106	30%	57%	13%	7,751	27%	62%	11%
NMB+OG	3,956	43%	53%	4%	141	65%	34%	1%

(Source: Census of India, 2011 and Consultant Compilation)

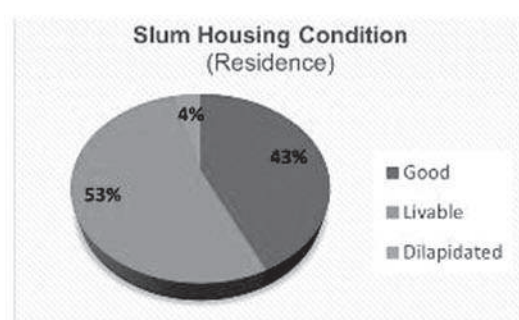
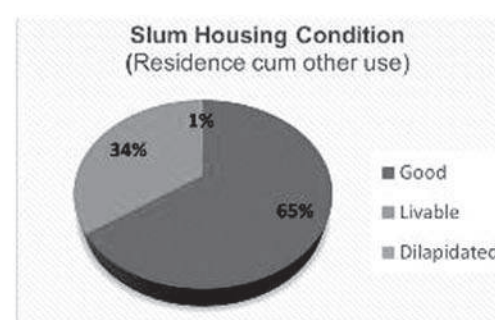


Figure 67: Slum Housing condition



(Source: Census of India, 2011)

In 2011, out of total 28515 occupied housing units in NMB +OG, 27,855, units are exclusively residential and 660 are used for residence-cum-other uses. Out of total residential housing units, majority units are in good condition and liveable, while only 4% are in non-living condition. Ratio of housing units in good condition is much higher in NMB+OG (43%) as compare the share of good conditioned occupied housing units in the state (33%) and district (30%). However, the share of livable housing condition in the state and in the district is much higher as compared to the NMB.

In slum houses category, houses in good condition which are 43% followed by houses in liveable condition which are 53% and the least are in dilapidated condition which are 4%. Also, the condition of houses mentioned for the residential cum other use of slum houses, where 65% are in good condition and only 1 percent are in dilapidated condition.

### 5.1.5 CONSTRUCTION MATERIAL OF HOUSES

#### 5.1.5.1 Material of Roof:

Majority of households in the region have G.I. Metal sheets for roofing because they are great protection against rain and is easily available in the region. In NMB area, around 81% of houses have G.I. Metal sheet roofs, which is still comparatively low numbers than the states (74.20%).

Table 62 Material of Roof

Area Name	Total number of HHs	Grass/ Thatch/ Wood/ Mud	Plastic Polythene	Handmade Tiles	Machine made Tiles	Burnt Brick	Stone/ Slate	G.I./ Metal/ Asbestos sheets	Concrete	Any other material
State	62,72,151	18.60%	2.10%	0.70%	0.3%	0.1%	0.80%	74.20%	2.90%	0.20%
District	5,60,857	26%	3%	0.00%	0%	0.0%	1.00%	69%	1%W	0.00%
NMB+OG	28,515	1%	0.41%	0.15%	0.0%	0.2%	1.05%	81.3%	15.51%	0.04%

(Source: Census of India, 2011)

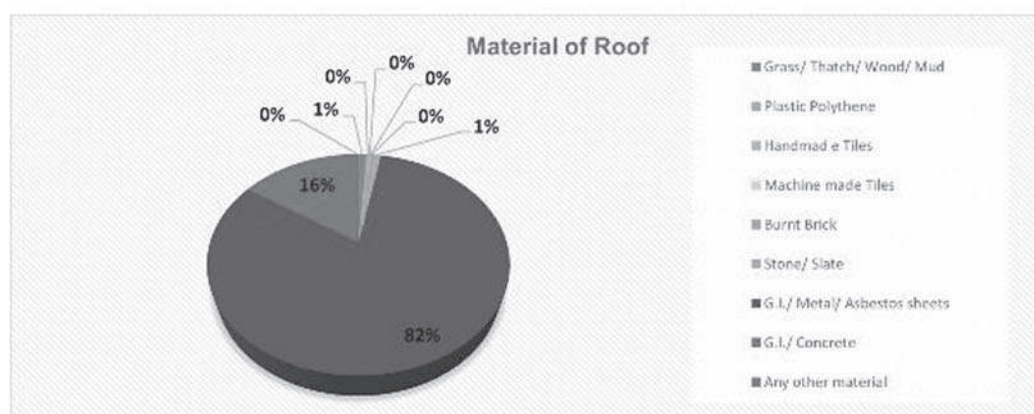


Figure 68: Material of roofs

(Source: Census of India, 2011)

In the districts 69%, households have the same roofing material. At the same time, around 15.51% households in NMB have the permanent roofs made of concrete; the number is comparatively higher than the number of households with the permanent roofs in the state and the districts.

## 5.1.5.2 Material of walls

Table 63 Material of Wall

Area Name	Grass/ Thatch/ Bamboo etc.	Plastic/ Polythene	Mud/ Unburnt brick	Wood	Stone not packed with mortar	Stone packed with mortar	G.I./ Metal/ Asbestos sheets	Burnt brick	Concrete	Any other material
State	66.40%	0.60%	3.60%	1.60%	0.70%	1.40%	1.10%	21.20%	2.90%	0.50%
District	67%	0%	4%	2%	1%	2%	0%	19%	3%	1%
NMB+OG	36%	0%	2%	0.0%	1%	12%	1%	29%	17%	0%

(Source: Census of India, 2011)

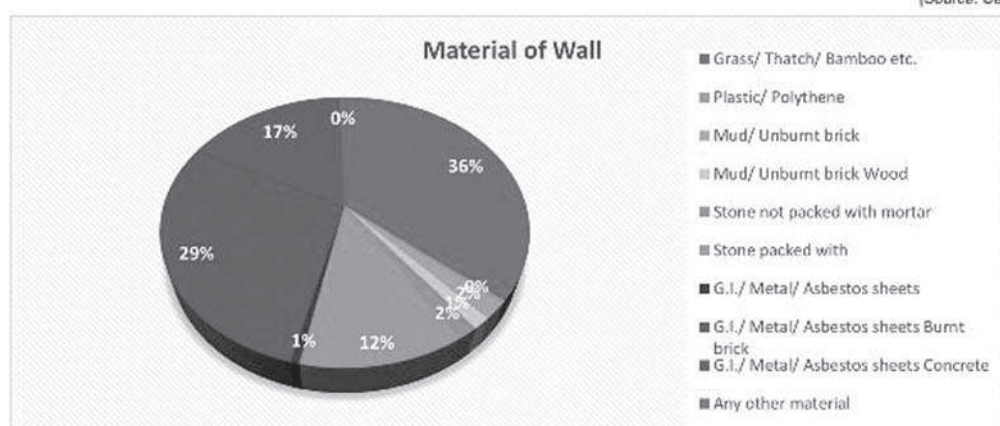


Figure 69: Material of Wall

Majority of houses in NMB and OG are Pucca houses with walls made of either burnt bricks (30.9%). Houses made with bamboos and thatch is the second majority in NMB area (29.96%). Very few houses observed with wall materials like mud stones and mortar. However, on the other hand, majority of houses in the state (66.4%) and in the district (59.92%) are Kachha houses with the walls made of grass, bamboos and thatch.

## 5.1.5.3 Material of Floor:

In NMB and OG, cement is predominantly used material for flooring. Almost 56.20% households in NMB and OG have permanent flooring made of cement, and only 36% houses are with flooring made of mud, especially in the slums and other low-income group areas. On the other hand, at the state and the district levels, mud is the predominant flooring material widely used. Majority of households in the state (79%) and in the district (83%) have floor made of mud. Wood, bamboo, stone, and mosaic tiles are other flooring materials used for flooring in the region.

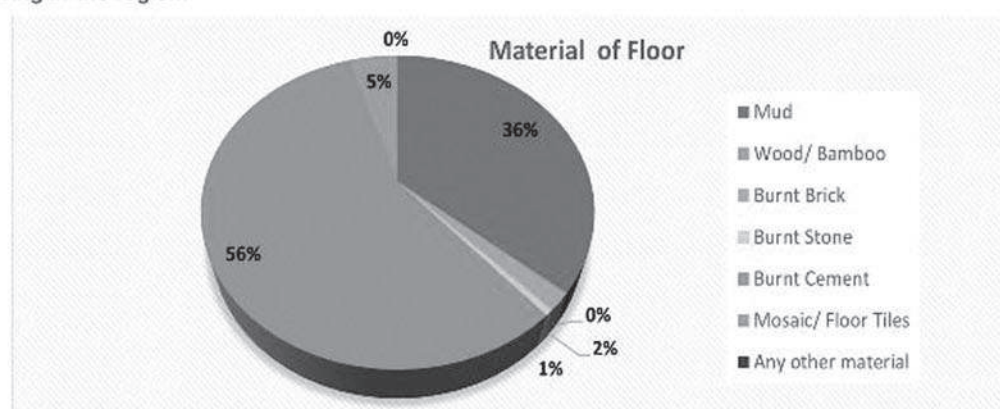


Figure 70: Material of floor

Table 64 Material of floor

Area Name	Mud	Wood/Bamboo	Burnt Brick	Stone	Cement	Mosaic/ Floor Tiles	Any other material
State	78.60%	2.10%	1.20%	0.40%	16.60%	1.00%	0.10%
District	83%	0%	1%	0%	15%	0%	0%
NMB+OG	36%	0.20%	1.68%	0.61%	56.39%	4.76%	0.04%

### 5.1.6 OWNERSHIP STATUS OF HOUSES

According to census 2011, the housing sizes are classified as number of dwelling units with following categories.

1. Dwelling units with no exclusive rooms
2. Dwelling units with single room
3. Dwelling units with two and three rooms
4. Dwelling units with four and five rooms
5. Dwelling units with six and above rooms

Table 65 Housing Ownership Urban area

Area Name	Ownership status	Total no. of households	Households having number of dwelling rooms						
			No exclusive room	One room	Two rooms	Three rooms	Four rooms	Five rooms	Six+ rooms
Nagaon (MB + OG)	Total	28,515	296	6,942	7,251	5,457	3,812	2,351	2,406
	Owned	91.94%	43.24%	23.49%	47.73%	60.49%	75.81%	86.47%	91.94%
	Rented	7.23%	51.35%	72.05%	47.01%	36.34%	22.95%	12.38%	7.23%
	Any Other	0.83%	5.41%	4.45%	5.25%	3.17%	1.23%	1.15%	0.83%

(Source: Census of India, 2011)

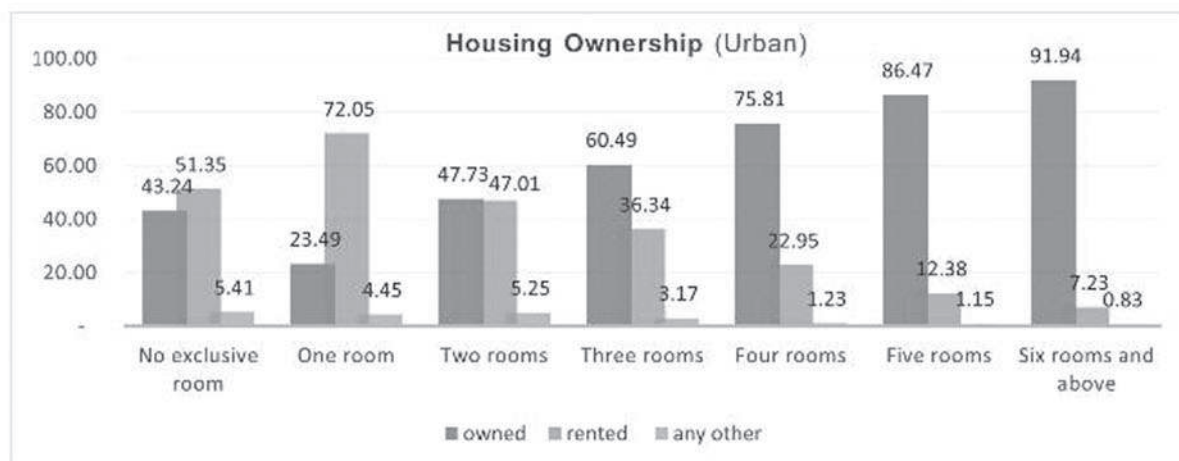


Figure 71: Housing Ownership by Dwelling Rooms

(Source: Census of India, 2011)

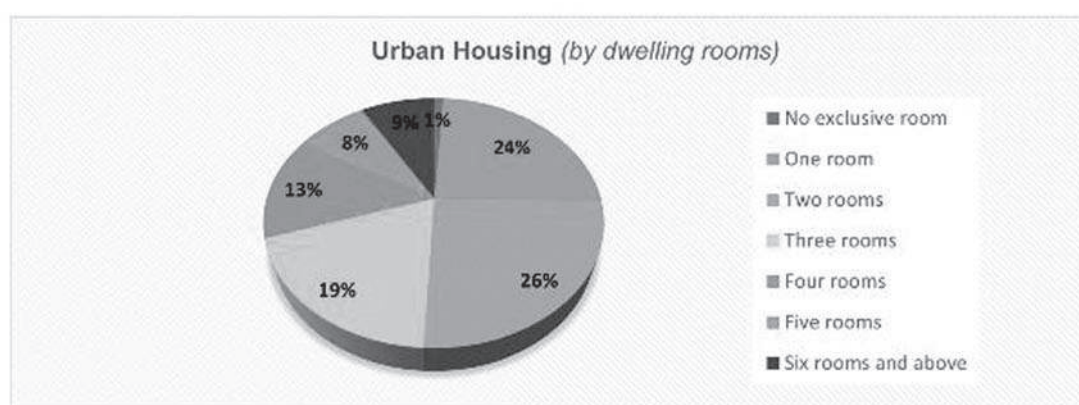


Figure 72: Housing ownership of dwelling in NMPA

From the figure 72 it is observed that 24% of total households are owning single room and 19% three-room units in the urban area while 26% households live in two room dwelling units. Out of 7251 two room units 47% are owned and 47% are on rent. It is also observed that 8% of the Households are living in five plus rooms where only 1.2% are rented and major units are under ownership status. In overall the 0.1% of the households are living without any exclusive room in urban area on the total urban household

Table 66 Housing ownership (Rural Area)

Area Name	Ownership status	Total number of households	Households having number of dwelling rooms						
			No exclusive room	One room	Two rooms	Three rooms	Four Rooms	Five Rooms	Six rooms and above
Nagaon (Rural)	Total	35816	174	1436	14446	5898	7875	3375	2612
	Owned	87.41%	50.57%	78.34%	86.97%	84.55%	94.65%	87.44%	81.81%
	Rented	9.69%	47.7%	19.15%	10.07%	11.48%	3.64%	9.69%	13.97%
	Any Other	2.91%	1.72%	2.51%	2.96%	3.97%	1.7%	2.87%	4.21%

(Source: Census of India, 2011)



Figure 73: Housing Ownership by Dwelling Rooms

(Source: Census of India, 2011)

The figure 74 describes that 4% of total households are owning single room in the rural area while 40% and 17% households live in two and three-room dwelling units, respectively. Out of 14446 two room units 86.79% are owned, whereas only 10.07% are on rent status. It is also observed that 22% of the Households are living in four dwelling rooms where only 0.74% are rented and major units are under ownership. In overall the 7% of the households are living without any exclusive room in rural area on the total rural households.

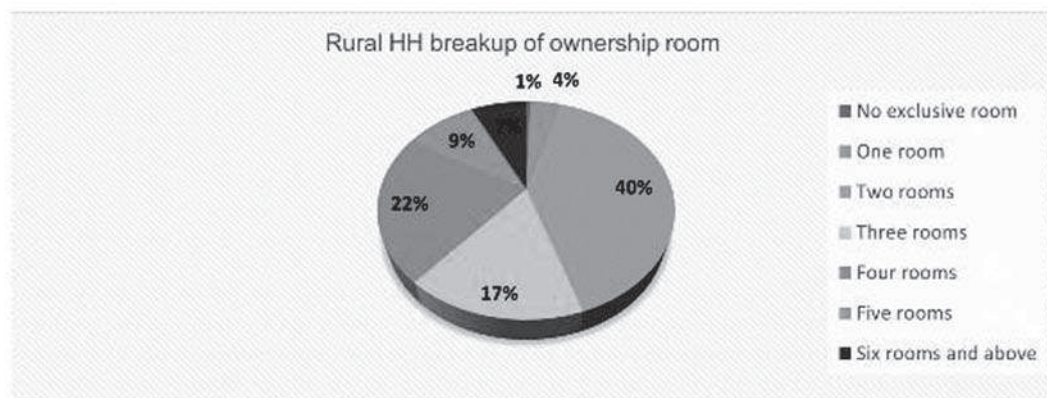


Figure 74: Rural Housing ownership of dwelling in NMPA

Source: Census of India 2011

Table 67 NMPA Housing Ownership by Dwelling Rooms

Area Name	Total number of households (Excluding Vacant Houses)	Households having number of dwelling rooms				
		No exclusive room	One room	Two and Three rooms	Four and Five rooms	Six rooms and above
NMPA	64331	470 (1%)	8378 (13%)	33052 (51%)	17413 (27%)	5018 (9%)

(Source: Census of India, 2011)

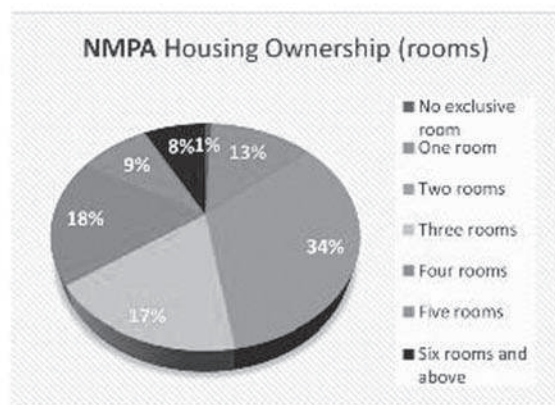


Figure 75: NPA ownership dwelling unit

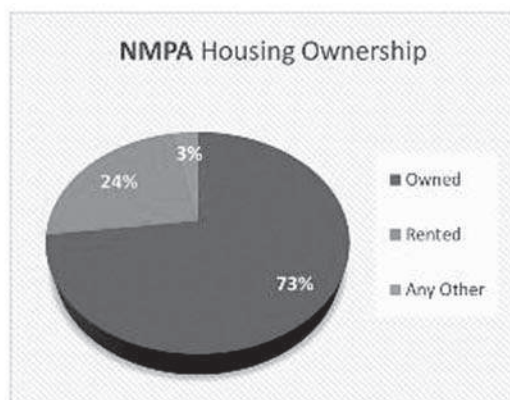


Figure 76: NMPA Housing ownership

In NMPA, 34% are two -room dwelling units as majority followed by three and four room categories, while 1% not having any exclusive rooms. Overall, NMPA observes 73% housing under ownership status and 24% under rent category status. Very few households fall under other category.

## 5.1.7 SERVICES

### 5.1.7.1 Source of Drinking Water:

On an average, more than half of the household in the region have source of drinking water within their premises. Water taps, wells, hand pumps, tube wells or boreholes are the primary sources of drinking water for households within-premises water facilities, while river, pond, lake, spring, and tank are the main drinking water source of water for them who do not have sources within their premises or nearby their premises and must go little far.

Table 68 Source of Drinking Water

Total/ Rural/ Urban	Location	No. of Hhs	Main Source of Drinking Water							
			Tap	well	Hand Pump	Tube well/ Bore hole	Spring	River/ Canal	Tank/ Pond/ Lake	Others
State	Within the premises	55%	10%	17%	62%	11%	0%	0%	0%	0%
	Near the premises	27%	12%	19%	40%	8%	1%	5%	14%	2%
	Away	18%	9%	24%	31%	6%	5%	12%	5%	7%
District	Within the premises	65%	6%	9%	78%	7%	0%	0%	0%	0%
	Near the premises	20%	6%	14%	65%	6%	0%	1%	1%	3%
	Away	15%	6%	16%	51%	6%	2%	6%	2%	10%
NMB+OG+CT	Within the premises	93%	20%	0%	70%	9%	0%	0%	0%	0%
	Near the premises	6%	7%	1%	82%	6%	0%	1%	0%	3%
	Away	1%	36%	1%	56%	1%	0%	0%	0%	6%

(Source: Census of India 2011)

As compared to the state, both districts and NMB have higher number of houses with the drinking facilities within in the premises. Majority houses in NMB have drinking water facilities within their premises. Unlike NMB where taps and tube wells are the primary source of water for the in-premises water facilities, hand pumps and tube well are the preliminary source of drinking water for the district.

### 5.1.7.2 Source of Lighting:

Around 85% of households in NMB, CTs and OGs have electricity connection. Similarly, majority of households in other urban centres of the project area have electricity connection. However, at the state level, less than 50% household have electricity connection, which means electricity has not yet reached to the all-rural areas in the state, and kerosene is still being used as a main lightening source widely in Assam. In NMB, the main source of lightning is electricity, which mainly provided by Assam State Electricity Board.

Table 69 Source of Lighting

Area Name	No. of households	Main Source of Lighting					
		Electricity	Kerosene	Solar Energy	Other Oil	Any Other	No Lighting
State	6,367,295	37.0%	61.8%	0.8%	0.1%	0.1%	0.2%
District	5,60,857	34.88%	64%	0.43%	0.09%	0.07%	0.15%
NMB+OG+CT	34377	85.13%	14.4%6	0.06%	0.0%5	0.12%	0.15%

(Source: Census of India, 2011)

**5.1.7.3 Type of Latrine Facility:**

Around 98% of households in NMB, CTs and OGs have latrine facility within the premises. Similarly, majority of households in other urban centres of the project area also have latrine facility within the premises. However, around 65% to 75% households in the state and districts do have latrine facilities within their premises. Septic tank is the most common type of treatment for in-premises latrine facility found in the project area.

Table 70 Latrine facility

Area Name	Number of Hhs Having Latrine Facility Within	Type of Latrine Facility Within the Premises								Number of Hhs Not Having Latrine Facility	No Latrine Within Premises	
		Flush/Pour Flush Latrine Connected			Pit Latrine		Night Soil Disposed Into	Service Latrine				
		Piped Sewer	Septic Tank	Others	Ventilated	Open Pit		Night Soil Remo	Night Soil		Public Latrine	Open
State	65%	5%	15%	8%	10%	24%	1%	0%	1%	35%	2%	33%
District	75%	6%	17%	12%	13%	50%	1%	1%	1%	25%	5%	95%
NMB+OG+CT	98%	17%	48%	6%	12%	15%	0%	0%	1%	2%	51%	49%

(Source: Census of India, 2011)

**5.1.7.4 Type of Bathroom and Drainage Connectivity:**

Over half of the households in the urban centres of the project area have bathing facilities within their premises. In fact, 69% households in NMB, CTs and OGs have in-premises bathroom facility. On the other hand, 58% households in the state and the district do not have in-premises bathroom facility.

Except NMB, the rest of the region is facing issues due to the lack of properly planned drainage system (suffering from lack of planned drainage system) for wastewater discharge. However, the 50% of NMB, CT and OG area has wastewater outlet connected to the drainage system, only 19% of the area has planned underground drainage system, and the rest of 31% area has open drainage system connected to the wastewater outlets from houses.

Table 71 type of Drainage &amp; Bathroom

Area Name	Number of Hhs having Bathing Facility within the Premises			Waste Water Outlet Connected to		
	Yes		No	Closed Drainage	Open Drainage	No Drainage
	Bathroom	Enclosure without roof				
Assam	24%	17%	58%	4%	17%	80%
District	22%	23%	55%	3%	12%	86%
NMB+OG+CT	69%	20%	11%	19%	31%	50%

(Source: Census of India 2011)

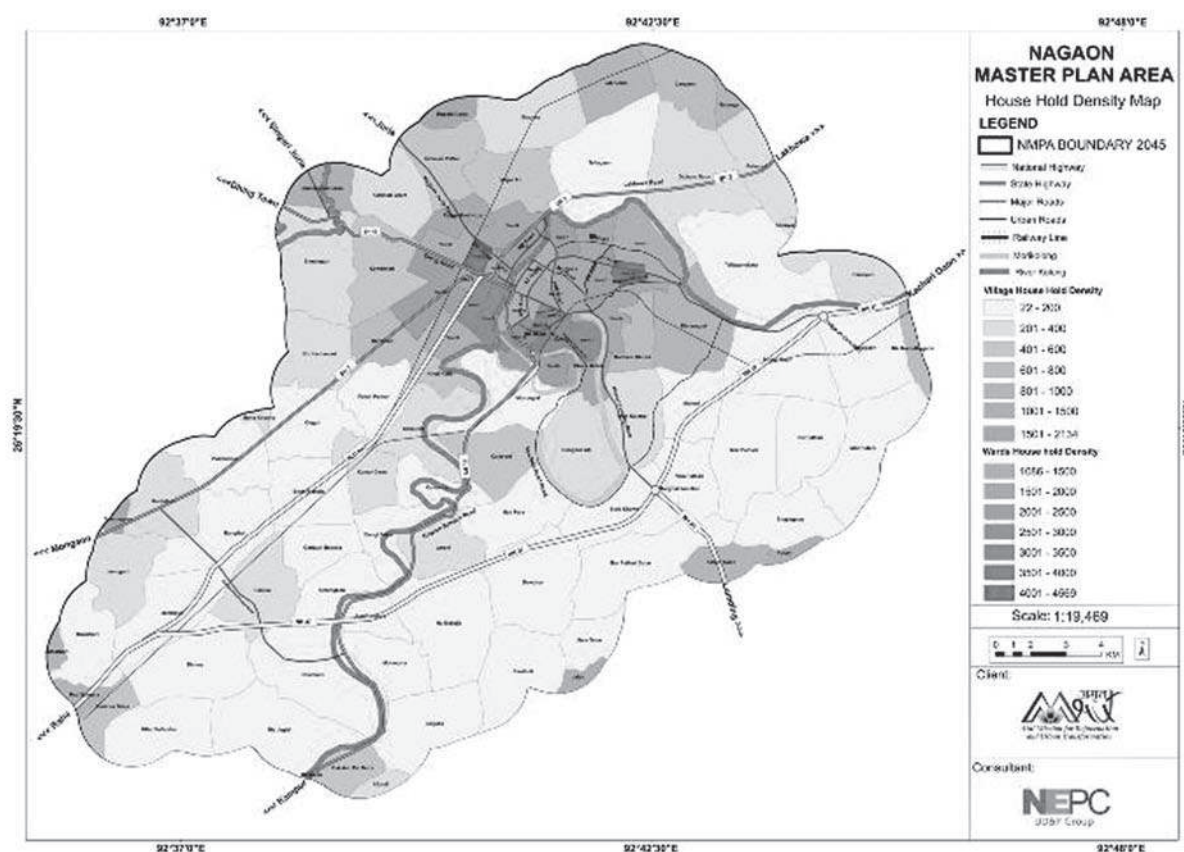
## 5.2 GROSS HOUSING DENSITY

Table 72 Gross Housing Density

Sr. No.	Name of Area	No. Of Household	Area (sq. km.)	Housing Density
1	NMB (26 Wards)	26483	12.33	2148
2	OGs	837	1.83	457
3	3 CTs	5703	6.61	862
4	76 Villages	31308	129.1	242

(Source: Compiled by Consultant)

Cities in India tend to have highest housing density in the central area. The density often progressively falls towards outskirts of the city this phenomenon is produced by intermixing of land uses in the central area particularly commercial activities, with residences. Housing density is defined as the average number of houses in one square kilometre of land or total number of households per total area. The housing density is important to be studied in urban study because it describes the level of openness or congestion in an area in terms of built-up area and open areas with respect to total area. Analysis of housing density in Nagaon MPA has revealed the overall gross housing density as 2148. The high housing density in Nagaon MB area is not a reflection of high-rise building but it is essentially due to the high occupancy rate and land coverage.



### 5.3 GROWTH OF REAL ESTATE

The real estate sector is one of the most globally recognized sectors. In India, real estate is the second largest employer after agriculture and is slated to grow at 30 per cent over the next decade. The real estate sector comprises of further sub sectors like township, housing, retail, hospitality, infrastructure and commercial. The growth of this sector is well complemented by the growth of the corporate environment and the demand for office space as well as urban and semi-urban accommodations. The construction industry ranks third among the 14 major sectors in terms of direct, indirect and induced effects in all sectors of the economy. (Source: Department of Industrial policy and promotion 2016).

Nagaon region experienced almost 20% population growth between the census year 1991 and 2011. This increasing trend has resulted in promotion of huge amount of all kind infrastructure development in Nagaon Planning Area. The real estate sector is one of the most globally recognized sectors. In India, real estate is the second largest employer after agriculture and is slated to grow at 30 per cent over the next decade. The real estate sector comprises of further sub sectors – township, housing, retail, hospitality, infrastructure and commercial. The growth of this sector is well complemented by the growth of the corporate environment and the demand for office space as well as urban and semi-urban accommodations. The construction industry ranks third among the 14 major sectors in terms of direct, indirect and induced effects in all sectors of the economy.

The real estate growth witnessed in the region is a result of the aforementioned reasons and it is poised to grow at a good pace with development initiatives taken by the Government of Nagaon and measures adopted as part of Master Plan 2045 which will open more residential properties for development along with industrial properties and Industrial corridors. With these proposals being adopted and implemented by the government, it will create an exponential growth in the real estate market of the Nagaon region. Hence based on the study of above facts, it indicates that there are 5 growth driven factors of Indian state's real estate. They are:

- Rapid Urbanisation
- Significant rise in consumerism
- Policy and regulatory reforms
- Surge in industrial and business activities
- Increasing demand for newer avenues for entertainment, leisure, and shopping

Considering the above factors, the Real estate developers aim to utilise opportunities in line of market demand. Hence, these phenomena of possible development act as catalyst in the development process by creating more demand for residential and commercial area in the Planning Area. On the other hand, it gives boost to the property values and paves the way to keep the real estate sector vibrant in Planning Area. However, while this development is progressive for human beings, sociologist and ecologists are concerned about the fate of the agriculture land. More and more farmers of Nagaon region will be forced to sell their lands to builders as they pay lucrative amounts for the plots. Areas which were barren or even wetlands at one point are now seeing construction of residential or commercial buildings. Therefore, to bring the orderly development and to protect the fertile agricultural land, the Government of India has come up with "The Real Estate (Regulation and Development) Act, 2016".

#### 5.3.1 THE REAL ESTATE (REGULATION AND DEVELOPMENT) ACT, 2016

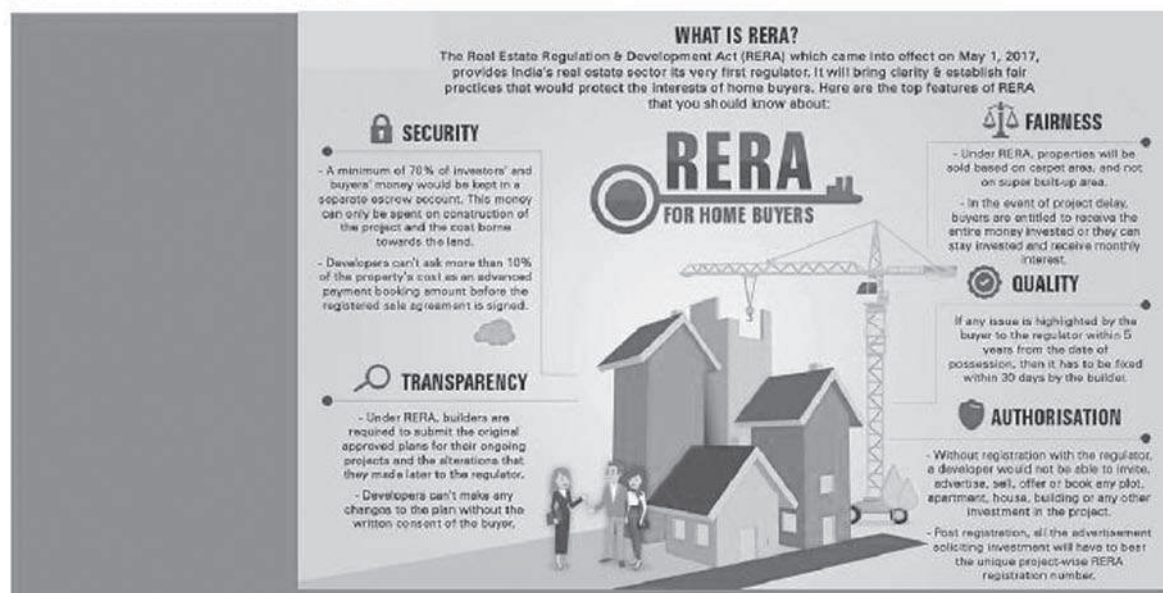
The Real Estate (Regulation and Development) Act, 2016 is an Act which protects the interest of purchasers of plots and dwelling units / flats. It further helps to boost investments in the real estate industry. The Act mandates establishment of Real Estate Regulatory Authority (RERA) in each state for regulation of the real estate sector and acts as an adjudicating body for speedy dispute redressal. The Real Estate Regulatory Authority regulates the real estate sector and ensures sale of plot, apartment, or building or sale of real

estate project, in an efficient and transparent manner and also protects the interest of consumers in the real estate sector. The act has got provision for an adjudicating mechanism for speedy dispute redressal and for establishment of Appellate Tribunal to hear appeals filed under the Act.

it is now a mandate for the city's real estate developers to register their projects under the Real Estate (Regulation and Development) (RERA) Act 2016, after the Assam Government notified the Act as Assam Real Estate (Regulation and Development) Rules 2017 in May, 2017.

### 5.3.2 SALIENT FEATURES OF THE REAL ESTATE REGULATION ACT (RERA), 2016

- The act establishes the state - level Real Estate Regulatory Authority for the regulation and promotion of the real estate sector, under section 20;
- The Act mandates prior registration of a project with the Real Estate Regulatory Authority under section 3(1). It also states that prior to registration no promoter shall advertise, market, book, sell or offer for sale, or invite persons to purchase in any manner any plot, apartment to building in any real estate project registering the real estate project with the Authority;
- The Act additionally provides for the registration of real estate agents by the real Estate Regulatory Authority under Section 34(a).
- The Act lays down the functions and duties of promoters under section 4, and under section
- it provides that once registration is applied for, RERA is given a time period of 30 days to either approve upon registration, the promoter shall be provided with a log-in and password to access the website of the authority and shall create his web page on the website and enter the details of proposed projects.
- Under Section 4(2) (l) (d), it makes mandatory upon the promoters to deposit fund amounting to 70 per cent to over the construction cost of the project in a separate bank account to be maintained at a scheduled bank, to prohibit unaccounted money from being pumped in and out of the sector to the detriment of the consumer.
- The Act states, under section 4(2) (d), the project shall be developed by the promoter in accordance with the sanctioned plans, layout plans and specifications as approved by the competent authorities.
- Under Section 15(1), promoter shall not transfer or assign his majority rights and liabilities in respect of a real estate project to a third party without obtaining prior written consent from two-third allottees.
- Under Section 19, the Act provides for the rights and duties of allottees, like allottee shall be entitled to know stage-wise time schedule of completion of the project, right to claim the refund of amount paid along with interest and compensation in the manner as provided under the Act.
- Under Section 38(1), the Act provides for penalties and offences in case of violations of law by the promoters, allottees and the real estate agents.



### 5.3.3 NEED FOR HOUSING POLICY

Housing is an important economic activity besides being a necessity. As part of the construction industry, which accounts for more than 50 per cent of the development outlays, housing has emerged as a major sector of economy having backward and forward linkages with almost all other sectors. With the increasing urbanization and rural to urban migration for employment, it becomes inevitable to provide basic infrastructure to people. Thus, to meet this demand, Government of India is introducing various policies like Pradhan Mantri Aavas Yojana (Housing for all), affordable housing policies etc. For the vulnerable and weaker sections of the society, the Government is playing the role of direct provider. A Centrally sponsored scheme called Valmiki Ambedkar Awas Yojana (VAMBAY) was launched with a view to ameliorating the conditions of the urban slum dwellers living below poverty line who have inadequate shelter. The scheme has the primary objective of facilitating the construction and upgradation of the dwelling units in the slum areas and to provide health and enabling urban environment through community toilets under Nirman Bharat Abhiyan, a component of the scheme. The scheme is being implemented through HUDCO.

The Pradhan Mantri Aavas Yojana is being implemented during 2015-2022 and provides central assistance to Urban Local Bodies (ULBs) and other implementing agencies through States/UTs for:

- In-situ Rehabilitation of existing slum dwellers using land as a resource through private participation
- Credit Linked Subsidy
- Affordable Housing in Partnership
- Subsidy for beneficiary-led individual house construction/enhancement

Credit linked subsidy component is being implemented as a Central Sector Scheme while other three components as Centrally Sponsored Scheme (CSS). All statutory towns as per Census 2011 and towns notified subsequently would be eligible for coverage under the Mission.

In the spirit of cooperative federalism, mission provides flexibility to the States for choosing the best options amongst four verticals of mission to meet the demand of housing in their states. Process of project formulation and approval in accordance with the mission Guidelines has been left to the States so that projects can be formulated, approved, and implemented faster.

Other than these interventions, various other interventions were done by the government of India. A historical context of policy interventions towards Housing in India is described below:

- The policies of urban development and housing in India have had a long journey since independence. In early 1950s, the pressure of urban population and lack of housing along with basic services was an issue of great concern to the Government as well as to the civil society. It has generally been the responsibility of States to intervene towards meeting the housing requirements of the vulnerable sections of society and to create an enabling environment for provision of shelter to all on a sustainable basis.
- As part of the First Five Year Plan (1951-56), concrete governmental initiatives began with a focus on institution-building and housing for weaker sections of society. Government undertook construction of houses for Government employees and industrial workers (through Industrial Housing Scheme). The urban land was getting scarce for provision of housing especially for the middle and low-income groups, resulting in the government enacting the Urban Land (Ceiling & Regulation) Act, 1976. Housing and Urban Development Corporation (HUDCO) was set up in 1970 to provide affordable housing and provide specialized attention to critical segments of infrastructure development in cities and towns.
- In the late 80's and early 90's, Government envisaged a larger role for the private sector in the construction of housing, whereas government focused on mobilization of resources, provision for subsidized housing for the poor and acquisition of land. The National Housing Bank (NHB) was set up as a wholly owned subsidiary of Reserve Bank of India (RBI), in 1988 under the National Housing Bank Act, 1987 to expand the base of housing finance. These were coupled with schemes aimed at provision of housing and basic services for the urban poor.
- The first National Housing Policy was announced in 1988 to eradicate houselessness and improve the housing conditions. Thereafter a revised National Housing Policy was announced in 1994 as a by-product

of economic reforms process initiated in 1991. The goal of this policy was to increase the supply of land and basic minimum services with a view to promote a healthy environment. Subsequently, a Housing and Habitat Policy was unveiled in 1998 with the vision of "shelter for all" and better quality of life to all citizens by using the potential of public, private and household sectors. The key objective of the policy was on creating strong Public-Private Partnership (PPP) for tackling the housing problem.

- The National Urban Housing and Habitat Policy (NUHHP) 2007 was formulated with the goal of 'Affordable Housing for All' with special emphasis on vulnerable sections of society such as Scheduled Castes/ Scheduled Tribes, Backward Classes, Minorities and the Urban Poor. The spotlight was on 'habitat development' with a 'Regional Planning Approach' with the role of Government as a 'facilitator' and 'regulator.' The NUHHP-2007 lays emphasis on earmarking of land for EWS/LIG groups in new housing projects while retaining Governments role in social housing so that affordable housing is made available for EWS and LIG categories either on ownership or on rental basis.

Recently, the government of India has also come up with the Draft Model State Affordable Housing Policy for Urban Areas in 2014. The aim of this policy is to "create an enabling environment for providing "affordable housing for all" with special emphasis on EWS and LIG and other vulnerable sections of society such as Scheduled castes/Scheduled Tribes, Backward Classes, Minorities and senior citizens, physically challenged persons in the State and to ensure that no individual is left shelter less. The Policy further aims to promote Public Private People Participation (PPPP) for addressing the shortage of adequate and affordable housing." To supplement the efforts of the State Government, it is anticipated that the Government of India support will be forthcoming in the following aspects:

Through National Policies, Programmes and Schemes and act as a facilitator in the creation of affordable housing stock.

- The Central Government will also on one hand provide for capital grants support to Affordable Housing projects under various schemes to act as a lever to boost the supply of affordable housing and also provide for greater channelization of credit to the urban poor to enhance their purchasing power on the other.
- Ministry of Housing and Urban Poverty Alleviation from time to time will provide inputs to the Ministry of Finance for providing fiscal and financial incentives to this segment.
- The Government of India shall also strive to accord industry status to the real estate segment.
- The Government of India shall also consider making Viability Gap Funding available for Affordable Housing projects.
- Facilitate greater flow of capital through external sources like the External Commercial Borrowings and Foreign Direct Investment.
- The Central Government will encourage development of new avenues for project financing for Affordable Housing including that from the insurance and pension funds.
- The recent initiatives of Government of India like the Credit Risk Guarantee Fund Trust and Urban Housing Fund needs to be further promoted.

Apart from the interventions to be done by central government, state government also has to intervene in order to achieve the central governments' goal of providing affordable housing for all under the Model State Affordable Housing Policy for Urban Areas.

State interventions and specific actions points under Draft Model State Affordable Housing Policy for Urban Areas:

Since the Constitution of India envisages provision of Housing as the primary responsibility of the State Government, major initiatives are proposed to be taken by the State as part of the vision of the Government to provide affordable housing for all residents. Few interventions are listed below:

- At least 15% of the total project Floor Area Ratio (FAR)/Floor Space Index (FSI) or 35% of the total number of dwelling units, whichever is higher, will be reserved for EWS category.
- The State Government including that of its agencies such as the Urban Development Authorities, Housing

Boards, other parastatal agencies and Urban Local Bodies (ULBs) will, as far as possible, provide land for affordable housing projects.

- Subject to any Central Law, a people friendly land acquisition policy for the State will be created for undertaking affordable housing projects.
- Various models for assembling land will be encouraged in both Government and Private sectors by offering trunk infrastructure facilities and transportation linkages to such site.
- The policy aims to create an inventory of land holdings in cities to constitute a land bank and prepare an asset management plan for better management of the available land and targeting its supply to create affordable housing dwelling units. The State shall compile and maintain the inventory.
- The State will also develop innovative ways for capturing the value of land by way of developing infrastructure and regional connectivity.
- The State shall notify a policy on property rights to slum dwellers to provide title to the land and a non-eviction policy for residents of slums with over 5 years of documented stay in a particular location.
- Mortgageable leasehold property rights and land titles for the EWS and LIG categories shall be facilitated by the Revenue Department and the ULBs.
- Infrastructure services including water supply, sanitation, health, education facilities to existing housing colonies where there is absence of such facilities will be ensured.
- Special dispensation to the socially vulnerable sections like senior citizens, women, students, physically challenged, SC/ST/OBC and Minorities, etc. of the State shall be made.
- In situ Slum upgradation of slums and allied infrastructure will be taken up by tying up various schemes of Central and State Government.

The agencies responsible for various works to be implemented in Assam under majority of the central government's initiative are Town and Country Planning Department, Housing Board or Slum Board etc..

In Nagaon region, due to pressure in the urban areas, rampant development has taken place. Therefore, in order to have a streamlined growth in the coming future, Nagaon will require a Housing policy for the NMPA. Various Indian states like Madhya Pradesh, Chhattisgarh, Maharashtra, Karnataka etc. have introduced housing policy in order to have ordered development in the state. Thus, Assam Government shall also come up with a detailed Housing Policy. This policy should focus on various issues being faced by regions in terms of Housing.

It is noticed that a large number of unapproved layouts and sub-divisions have been developed in the Nagaon regions without adequate infrastructure and public civic amenities and most of the plots in such layouts and sub-divisions have been purchased by ignorant people and there is no way to convert these layouts and sub-divisions or plots back to their original land use;

It is expedient to regularise the plots in such unapproved layouts or sub-divisions, so as to protect the interests of ignorant purchasers and to mobilise financial resources in order to provide basic infrastructure facilities in areas where such unapproved layouts have come up.

Regularization of unapproved layouts will enable the purchasers to avail institutional finances to build houses at affordable interest rates and to improve their security of tenure and thereby their quality of life. It is also observed that regularisation of sold out plots alone without considering the layout or subdivision as a whole will result in discontinuous pockets of development, causing enormous difficulties to the Local Bodies to provide services to the regularised plots in isolation and therefore, it is considered necessary to regularise these unapproved layouts and sub-divisions in their entirety by insisting to widen the roads, improve circulation, reserve areas for open space and public purpose to the extent feasible in each layout.

Effect of regularization – Plots regularised under this scheme shall be deemed to be regularised for residential use.

Some imperative objectives of the Housing Policy to be formulated is described as under:

- To facilitate affordable housing in urban and rural areas, create adequate housing stock for Lower Income Group (LIG), Economically Weaker Section (EWS) and shelters for the poorest of the poor on ownership

or rental basis.

- To pursue the target of cities without slums through equitable slum redevelopment and rehabilitation strategy and shelters for the poor.
- To deregulate housing sector and encourage competition and public private partnerships in financing, construction and maintenance of houses for Lower Income Groups (LIG) and Weaker Sections of the society.
- To rationalize development control regulations and streamline approval procedures.
- To promote rental housing and incentives to different options of rental housing for weaker sections.
- To facilitate the redevelopment and renewal of inner-city areas and dilapidated buildings through options of land assembly, conserving heritage structures and places of archeological importance.
- Encourage technology innovation, training and capacity building of the construction workers to enhance their productivity and improve quality of housing stock.
- To promote larger flow of funds for investment in housing and infrastructure using innovative products and appropriate institutional mechanism.
- To encourage progressive shift from target orientation to a demand driven approach as also from a subsidy-based housing scheme to cost sharing or cost recovery-cum-subsidy schemes.
- To provide for mandatory construction of EWS/LIG housing by the private sector in the government-provided land, government facilitated site or their own projects.
- The policy will orient towards setting up of a land bank to ensure smooth supply of land for projects specifically meant for construction of houses to low-income segment households
- To create skilled manpower for building construction industry and create employment opportunity for low-income group.
- To conserve ecologically sensitive areas and promote environmentally sustainable cities and townships.
- To establish Management Information System to strengthen monitoring of building activity in the Union Territory.

### 5.3.4 AFFORDABLE HOUSING POLICY

A policy document is a set of guidelines to direct the actions of all persons/ institutions involved or connected regarding any area of activity. Preparation of a housing policy is the need of the hour with respect to growing requirement of shelter and related infrastructure. As discussed in the previous section requirement for shelter is growing in context of rapid urbanization, migration to cities, mismatch between demand and supply of housing (especially affordable housing for EWS/ LIG), and inability of the urban poor to access the formal housing market to fulfil its housing need. An Affordable housing policy within the framework of State Affordable Housing policy to cater to the local need of the district may be formulated.



## 5.4 HOUSING STOCK AND SHORTAGE

Housing shortage is defined as the set of populations who does not hold any house. There may be a growing concern for homeless across big cities during winters, but progress in construction of night shelters has been very slow across most of the states despite the centre providing 75% of funds required for building and refurbishing shelters for the urban homeless. In absence of city level data on the houseless population and pavement dwellers, the houseless population is derived from the data published as part of Census of India, 2011. Details of housing stock, Municipal Board, and urban centre wise, in NMPA were computed based on the Census of India, 2011 and are presented in the table 73.

Table 73 Housing Stock in NMPA 2011

Sr. No.	Nagaon Planning Area	No. Of Household 2011	Total no. of Housing Stock 2011	Housing Shortage
1	NMB + OG	27320	26,822	498
2	CT	5703	5,576	127
4	Rural	31,308	29,314	1994
<b>Total for NMPA</b>		<b>64,331</b>	<b>61,712</b>	<b>2619</b>

(Source: Census of India, 2011)

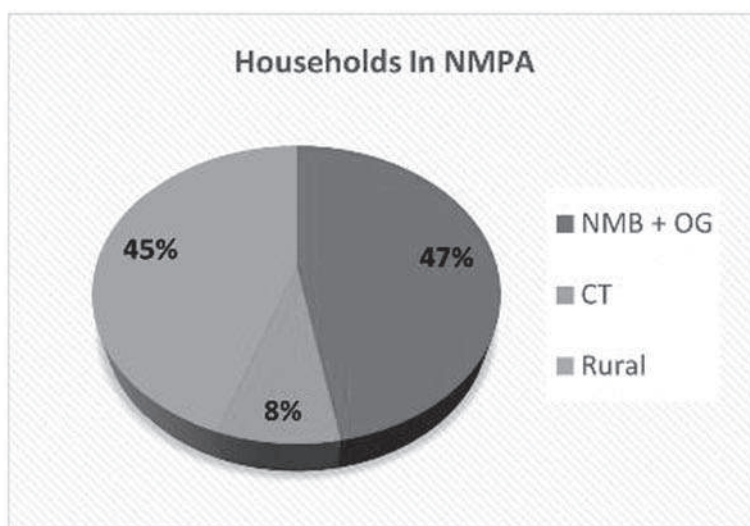


Figure 77: Households in NMPA

(Source: Census of India, 2011)

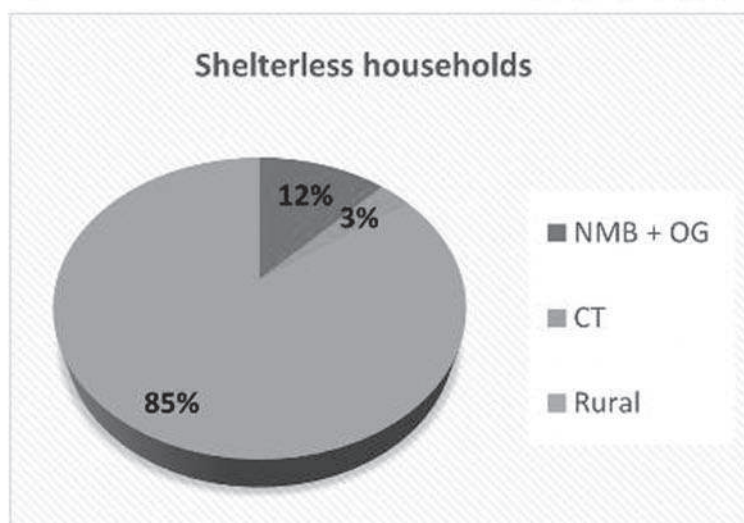


Figure 78: Shelter less households

(Source: Census of India, 2011)

## 5.5 SLUMS

A Slum, for the purpose of Census, has been defined as residential areas where dwellings are unfit for human habitation by reasons of dilapidation, overcrowding, faulty arrangements and design of such buildings, narrowness or faulty arrangement of street, lack of ventilation, light, or sanitation facilities or any combination of these factors which are detrimental to the safety and health.

According to Census, slums are categorized into notified and identified slums. The high rate of growth of urban population and its accumulative nature with a population has led to increasing problem of housing, reducing privacy, and overcrowding in small house, steady growth of slums and unplanned settlements and severe effect on civic services in urban areas in the system.

Slums can be commonly seen in urban areas which are occupied by urban poor or economically weaker sections of the society or the migrants from nearby villages or other states that come to the urban areas in search of employment to earn their livelihood. Slums are an indispensable part of our cities because as the cities grow, due to economic and physical growth of the urban area, people migrate from different areas in search of employment. So, to provide basic amenities to the urban poor and slum dwelling people this aspect needs to be incorporated while doing urban study to have an overall development of the city. Planning is for the people and in a way, slums are an indispensable part of the society. To make the city livable for all and to improve the condition of slums, this comprehensive study regarding slums plays a vital role in planning.

### 5.5.1 REASON FOR SLUM

The Nagaon region presents a wide range of activities in various institutional, Commercial and tourism sectors. Growth in such activities, possibilities of absorption in various service sectors, scope of employment in trade and business activities, hawking, retailing, carting etc., could have attracted more rural poor to the urban. Due to their economic status, these urban poor are unable to get a house within their limited income and hence occupy vacant spaces wherever available and lead a marginal level of living. These habitations in due course develop into slums proliferate exponentially further due to rapid urbanization and natural growth of population. In this scenario, the role of Government in tackling the slum becomes more pertinent.

### 5.5.2 IMPACT OF SLUM

The development of slums leads to Poor environmental conditions in such areas which lead to poor health, which aggravates poverty and often results in lower educational levels, as well as loss of income owing to sickness, disease, and increased spending on health care, which may deplete household savings. On the other hand, environmental problems exacerbate urban poverty and poor neighbourhoods suffer disproportionately from inadequate water and sanitation facilities and indoor air pollution. Poor people living in slum are often forced to live in environmental unsafe areas, steep hillsides and flood plains or polluted sites near solid waste dumps, open drains and sewers, and polluting industries. Conflicts like quarrel, clash and fight in the squatters of this area is a regular phenomenon. This creates noise and violence which leads to lack of security in the area and disturbs the city dwellers, particularly the nearby residents, office workers, and school children. Besides, many of the residents are involved in prostitution, drug trafficking, hijacking, smuggling etc. These activities threaten the social and cultural environment of the city.

### 5.5.3 SLUMS IN NMPA

As per Census 2011, there are 18110 people living in slums within Nagaon MB and OG area which is approximately 6%.

Table 74 Percentage of slum population from total population

Town Name	Total Population of Town	Slum Population	Percentage share from total population (%)
Nagaon (MB + OG)	298680	18110	6.06

(Source: Census of India, 2011)

### 5.5.4 NOTIFIED AND NON-NOTIFIED SLUM

Areas notified as slums by the respective municipalities, corporations, local bodies or development authorities are treated as “notified slums”. In any city, it is generally observed that the slum is developed mostly near their working places. Slum dwellers first prefer the location of land which is nearer to the workplace and then they prefer the location where basic amenities such as water, proximity to public transport etc. is available. That is why slums generally develop near the industries, wholesale-markets, godowns, railway stations and even in residential areas. They generally use public-transport or slow-moving vehicles such as cycle, rickshaws etc. as it is economical.

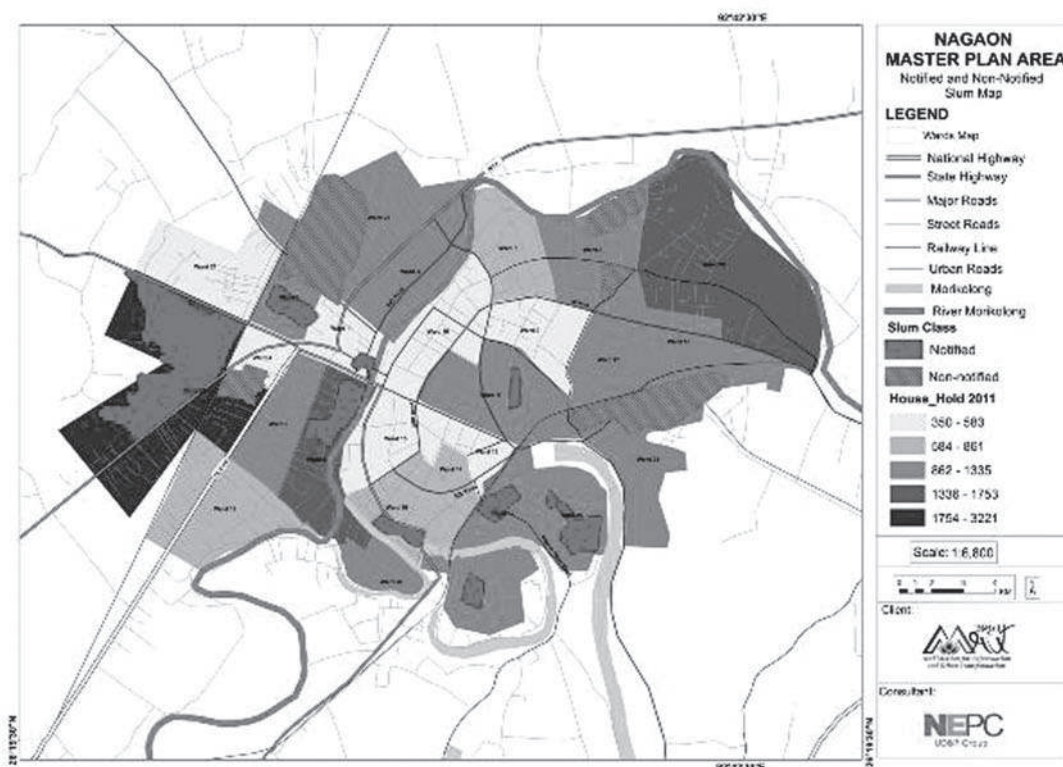


Figure 79: Notified and Non-notified slums area

Few notified slums are already situated within city area which are marked here in light blue color polygon. The hygiene condition within slum area is degraded and major area is found with litters and thrown garbage. Open channel sewerage is a part of slum which also spills over with garbage at some places. Some patch of slum area along riverbank is non notified as they are accompanied by legal properties. Owing to slum area the premises is lacking in fundamental amenities of sanitation and hygiene. The area is on the rudimentary level of development. Slum area develops unhygienic conditions for the local areas as well. Slum locations include,

The table 75 shows the details of slums which includes the name of slums, the land ownership status, total area, population, and number of households. According to the data, there are 15 notified slums in the town and 8 un-notified slums. The total area constituted by slums is 0.62 sq.km. with total population of 10646.

Table 75 Slum population and housing details

Sr. No.	Name of the Slum (notified) Notified	Ownership of land where slum is located	Area (sq. mt.)	Slum Population	No. of Slum Household
<b>Notified</b>					
1	Haiborgaon	1	0.026365	126	29
2	Harizon	2	0.004649	267	37
3	Rabi udayanchal	2	0.020328	880	189
4	Aminpatty	1	0.019658	440	83
5	Fauzdaripatty	1	0.009884	335	83
6	Hotel bari	1	0.018481	615	122
7	Islampatty	1	0.198345	1953	39
8	Mulapatty north	1	0.122139	1161	234
9	Mulapatty south	1	0.065767	619	126
10	Chandmari west	1	0.025663	343	76
11	Charikhuti	1	0.006011	433	79
12	Azadnagar	1	0.017025	546	110
13	Geetanagr	1	0.014439	189	39
14	Chokitop west	1	0.010723	287	58
15	Kalongpar	2	0.003398	378	78
<b>Total</b>			0.562875	8572	1382
Sr. No.	Name of the Slum (Non-Notified)	Ownership of land where slum is located	Area (sq.mt.)	Slum Population	No. of Slum Household
<b>Non-Notified Slum</b>					
16	Santipur	1	0.010334	279	66
17	Amulapatty east	1	0.0184	221	58
18	Itachali	1	0.002866	308	69
19	Morikallong	4	0.012034	514	98
20	Hedayatnagar	3	0.00996	31	59
21	Panigaon	1	0.002551	348	61
22	Lachinagar	1	0.003473	277	50
23	Chandmari north	1	0.003742	96	22
<b>Total</b>			0.0633	2074	483
<b>TOTAL Slums</b>			<b>0.626234</b>	<b>10646</b>	<b>1865</b>

1, Local body - 01, State Government - 02, Central Government - 03, Private - 04, others - 05)

(Source: Census of India, 2011)

Table 76 Slum Census Houses

Sr. No.	Area Name	Nagaon (MB + OG)
1	Total number of Slum census houses	6983
2	Total number of occupied Slum census houses	5920
3	Total number of vacant Slum census houses	1063
4	Total number of occupied locked Slum census houses	66

(Source: Census of India, 2011)

## 5.6 HOUSING DEMAND GAP ANALYSIS

### 5.6.1 FACTORS CAUSING HOUSING SHORTAGE

There are several factors which would affect the housing shortage. The recent technique in finding the housing shortage is published by Ministry of urban poverty and alleviation. There are 5 major factors which decides the housing shortage in the system. They are -

1. WCongestion factors
2. Obsolescence factors
3. Non-Durability
4. Present housing shortage
5. Calculation of housing shortage for 2045 for the projected population

#### 5.6.1.1 Congestion Factor

Congestion factor is the ratio of households that are residing in unacceptable congested conditions, from physical and socio-cultural viewpoints (i.e. married couples sharing the room with other adults etc.,) or the percentage of households in which each married couple does not have separate room to live. The table 77 indicates that the congestion factor for each Municipalities/Commune Panchayats according to the census 2011. It is observed that the planning area shows a uniform congestion factor for all the Municipalities/communes in Nagaon region for the year 2011.

Table 77 Household without exclusive room

Sr. No.	Nagaon Planning Area	HH 2011	No exclusive room for marriage couples 2011	Congestion Factor
1	NMB+OG	27320	296	0.01
2	CT	5703	58	0.01
4	Rural	31308	174	0.005
Total for NMPA		64331	528	0.008

(Source: Compiled by Consultant)

#### 5.6.1.2 Obsolescence Factor

Obsolescence factors is all the bad houses, excluding those that are less than 40 years old and all houses' ages 80 years or more. Obsolescence are the households living in obsolete buildings (40 to 80 years old in a bad structural condition, and 80 or more years) and excluding temporary houses (to avoid double counting). The table 78 illustrates the Obsolescence Factor for Nagaon Planning Area according to Census 2011.

Table 78 Housing shortage due to obsolescence

Sr. No.	Nagaon Planning Area	HH 2011	HH above 50+ yrs in NMPA	Obsolescence Factor
1	NMB+OG	27320	1093	0.04
2	CT	5703	171	0.03
4	Rural	31308	1565	0.05
Total for NMPA		64331	2829	0.04

The table reveals that the highest obsolescence factor is observed in rural area which indicates that the status of housing condition is poor with respect to the overall housing condition of the Nagaon Planning Area. It is also observed that the Obsolescence factor in NMB area is 0.04, which also witnesses the good quality of socio-economic status in the region mainly due to the urban nature of the area and developments which are in tune with the overall development of the Nagaon region.

#### 5.6.1.3 Non-Durability

Non-durability is the no. of temporary houses which are not suitable for living or Non-serviceable units are taken out. Temporary/ kutchha houses are those in which both the walls and roof are made of materials that need to be replaced frequently. As per the census definition, temporary houses are made with walls and roofs made of temporary material. Walls can be made of grass, thatch, bamboo, plastic, polythene, mud, unburnt bricks or wood. Roofs can be made of grass, thatch, bamboo, wood, mud, plastic or polythene. Hence the non-durability of housing is the difference between the number of housing stock to the number of permanent houses. The table 79 represents the details of permanent, semi-permanent house and temporary house within the NMPA.

Table 79 Housing shortage due to non-durability

Particular		Permanent	Semi-permanent	Temporary	Number of Housing Stock
Urban	Nagaon MB+OG	25299	14073	498	39372
	Census Towns (CT)	2694	3845	127	6539
Rural	Rural areas	5285	10516	1994	15801
Total		33278	28434	2619	61712

(Source: Compiled by Consultant)

### 5.6.2 ESTIMATION OF HOUSING SHORTAGE

Acute housing shortage in country specially in urban centres has become a burning problem of the day since house construction activities do not keep pace with the growth of population of urban centres. The number of houses has, therefore, been successively falling short of actual requirement of the urban population. Based on the Ministry of Housing and Urban Poverty Alleviation, National housing shortage, the final estimation of housing shortage is calculated based on the corresponding factors such as homeless population, Non-durability factor, Congestion factor, Obsolescence. It has been calculated based on the census 2011. For this exercise, the following assumptions were adopted with the reference to the Assam state, District and NMB Housing Profile based on Census 2011 housing data:

- Dilapidated houses accounts for 11% of total housing stock for the project area and 4% for the urban areas.
- Vacant houses accounts for 4% of total housing stock for the project area and 10% for the urban areas.

The details of housing shortage based on census 2011 data are presented in the table 80.

Table 80 Total Housing Shortage in Nagaon

Sr. No.	Housing Shortage	No. of Shortage household
1	Shortage due to Homeless Population	2619
2	Shortage due to Dilapidated Houses	6788
3	Shortage due to Vacant houses	2468
4	Shortage for Slum households	6983
5	Shortage due to congestion in 2011	528
6	Shortage due to obsolescence in 2011	2829
Total Housing Shortage (2011)		22215

(Source: Compiled by Consultant)

## 5.7 HOUSING DEMAND GAP ANALYSIS

The future housing requirement for NMPA has been assessed considering both, the quantitative housing shortage, and the qualitative housing shortage. Below mentioned is the quantitative calculation of future housing requirement for year 2045.

Table 81 Decadal additional housing requirement

Year	Additional Population	HH size	Additional HHs
2021	47460	4.5	10547
2031	46556	4	11639
2041	48537	4	12134
2045	22988	4	5747
Total Additional Housing Requirement till 2045			<b>40067</b>

(Source: Compiled by Consultant)

For the 2021 housing projection considered average household size is 4.5; while for 2031,2041 and 2045 projection 4 household size is considered, based on the assumptions of having more numbers of nuclear families in the future than today and constant household formation rate for the entire Planning Area. The projected additional housing requirement considering increase in population by 2045 is 40067.

Table 82 Total Housing Demand by 2045

Sr. No.	Particulars	Numbers
1	Region	NMPA
2	Total Population 2011	2,98,680
3	Total Household	64,331
4	No. of Housing Stock 2011	61,712
5	Housing Gap (Factor 1)	2,619
6	No. of Good and Livable Houses	57543
7	No. of Dilapidated houses (Factor 2)	6788
8	Congestion Factor 2011	0.008
9	Shortage Due to Congestion Factor (Factor 3)	528
10	Obsolescence Factor 2011	0.04
11	Shortage due to Obsolescence Factor (Factor 4)	2829
12	No. of Locked and Vacant houses (Factor 5)	2468
13	No. of Slum houses (Factor 6)	6983
14	Projected Population 2045	464221
15	Projected Increase in Population from 2011 to 2045	165541
16	Housing requirement for increase in Population (Factor 7)	40067
<b>Total Housing Demand – 2045 (Factor 1+2+3+4+5+6+7)</b>		<b>62282</b>

(Source: Compiled by Consultant)

## 5.8 HOUSING PROVISION

The housing provision is met can be accommodate in the proposed Residential, Mixed Use and Conservation zones. Further, the residential and mixed uses zones are divided into different categories; with each has various FSI to offer so the development intensity can be managed. It is proposed to facilitate the provision of a fully serviced dwelling unit for each family and reduce the gap between housing shortage and supply through suitable measures. The planned catering for the additional housing is as mentioned in table 83.

Table 83 Decadal housing provision in NMPA

Year	Additional Population	HH size	Additional HH	Catering for the Shortage	Total Housing Need (decade wise)
2021	47460	4.5	10547	7775 (35%)	18322
2031	46556	4	11639	6664 (30%)	18303
2041	48537	4	12134	4443(20%)	16577
2045	22988	4	5748	3332 (15%)	9080
<b>Total</b>			<b>40067</b>	<b>22215</b>	<b>62282</b>

(Source: Compiled by Consultant)

For the decade 2021, 35% catering for housing shortage has been considered by taking benefit of the different housing schemes and state-central government fund utilization. Similarly, 30%,20% and 15% catering for year 2031,2041 and 2045, respectively.

### 5.8.1 HOUSING PROVISION BASED ON INCOME GROUP

Table 84 Housing provision considering Income Group

Year	Total Housing Need (decade wise)	EWS 20%	LIG 30%	MIG 40%	HIG 10%
2021	18322	3664	5497	7328	1832
2031	18303	3660	5490	7321	1830
2041	16577	3315	4973	6631	1657
2045	9080	1816	2724	3632	908
<b>Total</b>	<b>62282</b>	<b>12456</b>	<b>18684</b>	<b>24913</b>	<b>6228</b>

(Source: Compiled by Consultant)

As per the Ministry of Urban Poverty and Alleviation the population is categorised based on the income level such as Economically Weaker Section (EWS), Low Income Group (LIG), Medium Income Group (MIG) and High-Income Group (HIG). The table 84 indicates that the housing shortage for 2045 is calculated for each classification based on income level. This table helps to earmark the affordable housing in the Nagaon Planning Area and would also help to formulate the housing policy.

## 5.9 HOUSING POLICY

The main objective of the housing policy for Nagaon Planning Area is not only to meet the housing demand by horizon 2045 but also to improve the residential conditions at large. In view of this, Master Plan proposes development of residential neighborhoods having adequate facilities within walk able

distance. Design considerations require better planning.

### Private sector Participation

Privatization must be encouraged by participation of individuals and developers in the house building activities. The local administration could provide land with offsite

and on-site physical and social infrastructure and the private entrepreneurs could invest in house building. In principles, housing has four distinct components for its development i.e., Land Assembly, infrastructure provision, building construction and post occupancy management. The above diagram

gives an idea how these activities should be distributed amongst the Government, private and cooperatives making the Government a facilitator for housing development.

#### **Role of Government**

Government has to play proactive role of promoting the housing industry by regulatory measures and acting as a watch-dog rather than fully involving its organs in the provision of shelter to the town inhabitants. The magnitude of housing shortage is enormous and the State on its own cannot provide the housing stock. Government will limit its role to development of serviced land and subsequently its release to private developers and Cooperative Societies on premium equivalent to the cost of land plus marginal profit with only advisory and regulatory role in the development of housing industry.

#### **Housing of Different Income Categories**

The Master Plan recommends identification of priorities in dealing with different segments of the population. Out of the total demand, income category wise demand has been given in fixing the priority in dealing with different segments of the population: H.I.G. and M.I.G. dwelling units shall be provided with only developed land at market price to cross subsidize the housing for E.W.S./L.I.G.

#### **Group Housing Schemes**

To meet the housing demand by 2045, based on the need housing colonies or townships can be developed. Economies of scale are favorable to large colonies because of reduced per capita on investment on infrastructure and services development in large colonies. The Master Plan also envisages smart growth of the

city to overcome the scarcity of land and regulate sprawl of urban development in rich agricultural hinterland.

#### **Urban Village**

The peripheral village settlements, which have been incorporated in the Planning Area of Nagaon, are going to be part of its proposed Urban Area Limits during the process of its expansion. The settlements having a completely different life-style for centuries are now getting merged into urban environment and need a sensitive approach in the planning and development process. At present these settlements do not conform to any urban character and need an 'Action Plan' for extension of water supply, sewerage and drainage facilities and other basic urban amenities and efficient linkages with the main city. The settlements should get the modern services and amenities and should also be catered for their traditional cultural styles.



## 5.10 SLUM UPGRADATION PROGRAM

The scheme aims at acquiring sites in various parts of urban areas and to construct tenements and provide developed plots under "Sites and Services" concept to the slum dwellers. Improvement works to the existing Slums are being implemented through the Assam State Housing Board. The tenements in storeyed blocks are made available to the slum dwellers on rental basis. Apart from that, upgradation of slum areas by extending basic amenities viz., roads, water supply, sewerage, education, health, electricity, social infrastructure are also undertaken.

### 5.10.1 RAJIV AWAS YOJNA (RAY)

Rajiv Awas Yojna a path breaking centrally sponsored scheme for the slum dwellers and urban poor envisages a "Slum Free India" through encouraging states to tackle the problem of slums in holistic manner. The main objectives of RAY are -

1. Bringing existing slums within the formal system and enabling them to avail the same level of basic amenities as the rest of the town.
2. Redressing of failures of the formal system that lie behind the creation of slums.
3. Tackling the shortage of urban land and housing that keep shelter out of reach of the urban poor and force them to resort to extra-legal solutions in a bid to retain their sources of livelihood and employment.

### 5.10.2 PRADHAN MANTRI AWAS YOJANA (PMAY)

The "Pradhan Mantri Awas Yojana (Urban) - Housing for All" was launched by Government of India with an objective of providing houses to every family by the year 2022. The Mission is being implemented during 2015-2022 and provides central assistance to Urban Local Bodies (ULBs) and other implementing agencies through States/UTs. The "Pradhan Mantri Awas Yojana (Urban) - Housing for All" has following four Sub-schemes giving options for beneficiaries, ULBs / Implementing Agencies and the State Governments:

1. In-situ Slum rehabilitation of Slum Dwellers
2. Credit Linked Subsidy Scheme.
3. Affordable housing in partnership with Public & Private sectors.
4. Beneficiary Led Individual House Construction or enhancement.

#### 5.10.2.1 In-situ Slum Rehabilitation of Slum Dwellers (ISSR)

"In-situ" slum rehabilitation using land as a resource with private participation for providing houses to eligible slum dwellers is an important component of the "Pradhan Mantri Awas Yojana (Urban) - Housing for All" mission. This approach aims to leverage the locked potential of land under slums to provide houses to the eligible slum dwellers bringing them into the formal urban settlement. Slums so redeveloped should compulsorily be denotified.

#### Eligibility

- Slums, whether on Central Government land/State Government land/ULB land, Private Land, should be taken up for "in-situ" redevelopment for providing houses to all eligible slum dwellers.
- Eligibility of the slum dwellers like cut-off date etc. will be decided by States/UTs preferably through legislation.

#### Highlights

- Additional Floor Area Ratio (FAR)/Floor Space Index (FSI)/Transferable Development Rights (TDR) for making slum redevelopment projects financially viable.
- Slum rehabilitation grant of Rs. 1 lakh per house, on an average, would be admissible for all houses built for eligible slum dwellers in all such projects.
- Beneficiary contribution in slum redevelopment project, if any, shall be decided and fixed by the States/UTs Government.
- State/UT Governments and cities would, if required, provide additional Floor Area Ratio (FAR)/Floor Space

Index (FSI)/Transferable Development Rights (TDR) for making slum redevelopment projects financially viable.

- States/UTs will have the flexibility to deploy this central grant for other slums being redeveloped for providing houses to eligible slum dwellers with private participation, except slums on private land. It means that States/UTs can utilise more than Rs. 1 lakh per house in some projects and less in other projects but within overall average of Rs. 1 lakh per house calculated across the States/UTs.
- The per house upper ceiling of central assistance, if any, for such slum redevelopment projects would be decided by the Ministry.
- States/UTs may decide whether the houses constructed will be allotted on ownership rights or on renewable, mortgageable and inheritable leasehold rights.
- States/UTs may impose suitable restrictions on transfer of houses constructed under this component.
- •"In-situ" redevelopment of slums on private owned lands for providing houses to eligible slum dwellers can be incentivised by State Governments/UTs or ULBs by giving additional FSI/FAR or TDR to land owner as per its policy. Central assistance cannot be used in such cases.
- A viable project would have two components i.e. "slum rehabilitation component" which provides housing along with basic civic infrastructure to eligible slum dwellers and a "free sale component" which will be available to developers for selling in the market so as to cross subsidize the project.

**Implementation/Approach for Slum Rehabilitation with Private Partnership is outlined as below:**

- All tenable slums as identified in Housing for All Plan of Action (HFAPoA) of the city should be analysed with respect to their location, number of eligible slum dwellers in that slum, area of the slum land, market potential of the land (land value as per ready reckoner can be used), FAR/FSI available and density norms applicable to that piece of land etc..
- On the basis of analysis of slums, the implementing authorities should decide whether a particular slum can be redeveloped with private participation or not using land as a resource and to provide houses to eligible slums dwellers.
- For making projects financially viable, in some cases, States/UTs and cities might have to provide additional FAR/FSI or TDR and relax density and other planning norms. States/UTs may also allow commercial usage for part of the land/FAR as mixed usage of the land.
- States/UTs can also consider clubbing of nearby slums in clusters for in-situ redevelopment to make them financially and technically viable. Such cluster of slums can be considered as a single project.
- While formulating the project, the project planning and implementing authorities should also decide the area of slum land which should be given to the private developers. In some cases, the area of slum may be more than what is required for rehabilitating all eligible slum dwellers plus free sale component for cross subsidizing the project. In such cases, project planning authorities should give only the required slum land to private developers and remaining slum land should be utilised for rehabilitating slums dwellers living in other slums or for housing for other urban poor.
- Slum dwellers through their association or other suitable means should be consulted while formulating redevelopment projects especially for the purpose of designing of slum rehabilitation component.
- The private developers who will execute the slum redevelopment project should be selected through an open transparent bidding process. The eligibility criteria for prospective developers can be decided by States/UTs and ULBs. The scope of work of the prospective developers should be to conceive and to execute the project as mandated by the implementing agency using its financial and technical resources. The project developers would also be responsible for providing transit accommodation to the eligible slum dwellers during the construction period.
- All financial and non financial incentives and concessions, if any, should be integrated in the project and declared 'a priori' in the bid document. These incentives and concessions should also include contribution from beneficiaries/slum dwellers, if any.
- Sale of "free sale component" of project should be linked to the completion and transfer of slum

rehabilitation component to the implementing agency/state. Such stipulation should be clearly provided in the bid document to avoid any complication.

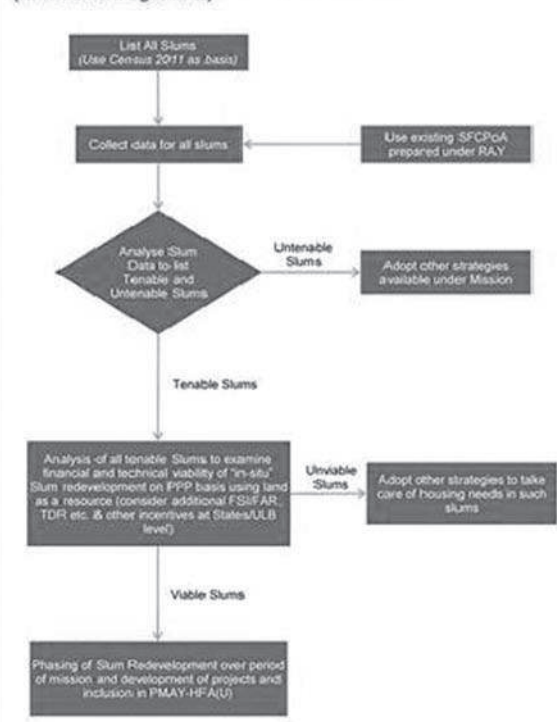
- Slum rehabilitation component should be handed over to implementing agency to make allotments to eligible slum dwellers through a transparent process. While making the allotment, families with physically handicapped persons and senior citizens should be given priority for allotment on ground floor or lower floors.
- Open bidding for the slum redevelopment project may result either into a positive premium or negative premium. In case of positive premium, the developer who offers the highest positive premium while satisfying all other conditions should be selected. In case of negative premium, the implementing authority may select the bidder proposing lowest negative premium. Funds required to make the project viable can be made available either from slum rehabilitation grant of Central Government or own fund of States and ULBs as well as positive premium received from other projects.
- Any private participation, that demands substantial grants from Government, may not be encouraged. Slums can either be taken up later for development or Kutcha/ unserviceable houses in such slums can be taken up under other components of the mission.
- States/UTs project planning and implementing authorities, ULBs should have a single project account for slum redevelopment project where positive premium, slum rehabilitation grant from Central Government, funds from State/UT Government or any other source is to be credited and used for financing all slum redevelopment projects with negative premium. Such accounts can be opened city-wise.
- Slum rehabilitation projects would require various approvals from different agencies as per prevailing rules and procedures in the States/UTs. Project development may also require changes in various development control rules. To facilitate such changes and for faster formulation and approval of projects, it is suggested that a single authority should be constituted with the responsibility to change planning and other norms and also for according approval to projects.

#### 5.10.2.2 Credit Linked Subsidy Scheme for EWS/LIG (CLSS)

Pradhan Mantri Awas Yojana (Urban) - Housing For All Mission, in order to expand institutional credit flow to the housing needs of urban poor is implementing credit linked subsidy component as a demand side intervention.

- Beneficiaries of Economically Weaker Section (EWS) and Low Income Group (LIG) seeking housing loans from Banks, Housing Finance Companies and other such institutions would be eligible for an interest subsidy at the rate of 6.5 % for a tenure of 20\* years or during tenure of loan whichever is lower.
- The credit linked subsidy will be available only for loan amounts upto Rs 6 lakhs and additional loans beyond Rs. 6 lakhs, if any, will be at nonsubsidized rate.
- Interest subsidy will be credited upfront to the loan account of beneficiaries through Primary Lending Institutions (PLI), resulting in reduced effective housing loan and Equated Monthly Installment (EMI).
- The Net Present Value (NPV) of the interest subsidy will be calculated at a discount rate of 9 %.

Strategy for Slum Redevelopment using Land as a Resource  
(Ref. Para 4 of the guidelines)



**Home Ownership**

The houses constructed/acquired with central assistance under the Mission should be in the name of the female head of the household or in the joint name of the male head of the household and his wife, and only in case when there is no adult female member in the family, the house can be in the name of male member of the household.

**Coverage**

All Statutory Towns as per Census 2011 and towns notified subsequently, including planning area as notified with respect to Statutory Town.

**Purpose**

New construction, acquisition and addition of rooms, kitchen, toilet etc. to existing dwelling houses as incremental housing.

**Beneficiaries**

- Beneficiary family will comprise husband, wife and unmarried children.
- The beneficiary family should not own a pucca house either in his/her name or in the name of any member of his/her family in any part of India.
- EWS Households having annual income up to Rs. 3,00,000/-
- LIG Households having annual income between Rs. 3,00,001/- and upto Rs. 6,00,000/-
- Preference under the scheme, subject to beneficiaries being from EWS/LIG segments, should be given to Manual Scavengers, Women (with overriding preference to widows), persons belonging to Scheduled Castes/ Scheduled Tribes/ Other Backward Classes, Minorities, Persons with disabilities and Transgender.

**Area which can be constructed**

- Carpet area of house being constructed or enhanced under this component of the Mission should be upto 30 square meters for EWS category and upto 60 square meters for LIG category.
- Beneficiary, at his/her discretion, can build a house of larger area but interest subsidy would be limited to first Rs.6 lakh only.
- For incremental housing/extension, the area limit will be 30 sq.mt. and 60 sq.mt. of carpet area for EWS and LIG category respectively.

**Subsidy and Loan details**

- Maximum loan amount: as per eligibility of customer decided by bank / Financial Institution based on due diligence.
- Maximum loan tenure : based on the guidelines of the PLI.
- Maximum tenure for subsidy computation: 20\* years or the tenure of the loan, whichever is lower.
- Maximum loan amount for subsidy calculation: Rs. 6 lakh.
- Interest rate for subsidy : 6.5%

**Housing and Urban Development Corporation (HUDCO) and National Housing Bank (NHB)** have been identified as Central Nodal Agencies (CNAs) to channelize this subsidy to the Primary Lending Institutions and for monitoring the progress of this component. This scheme will be implemented through Banks/Financial Institutions.

**5.10.2.3 Affordable Housing in Partnership (AHP)**

The third component of the Mission is Affordable Housing in Partnership which is a supply side intervention. The Mission will provide financial assistance to EWS houses being built with different partnerships by States/UTs/Cities.

Affordable housing projects are the projects where atleast 35% of houses are constructed for EWS category.

- To increase availability of houses for EWS category at an affordable rate, States/UTs, either through its agencies or in partnership with private sector including industries, can plan affordable housing projects.
- Central Assistance at the rate of Rs.1.5 Lakh per EWS house would be available for all EWS houses in such projects.
- The States/UTs would decide on an upper ceiling on the sale price of EWS houses in rupees per square

meter of carpet area in such projects with an objective to make them affordable and accessible to the intended beneficiaries. For that purpose, States/UTs and cities may extend other concessions such as their State subsidy, land at affordable cost, stamp duty exemption etc.

- The sale prices may be fixed either on the project basis or city basis using following principles:
- An Affordable Housing Project (AHP) can be a mix of houses for different categories but it will be eligible for central assistance, only if at least 35% of the houses in the project are for EWS category and a single project has at least 250 EWS houses. CSMC at GOI level, however, can reduce the requirement of minimum number of houses in one project on the request of State Government.
- Allotment of houses to identified eligible beneficiaries in AHP projects should be made following a transparent procedure as approved by SLSMC and the beneficiaries selected should be part of HFAPoA.
- Preference in allotment may be given to Physically Handicapped Persons, Senior Citizens, Scheduled Castes, Scheduled Tribes, Other Backward Classes, Minority, Single Women, Transgender and Other Weaker and Vulnerable Sections of the Society.
- While making the allotment, the families with person with disability and senior citizens may be allotted house preferably on the ground floor or lower floors.
- Detailed Project Report (DPR) of such projects prepared by concerned implementing agencies should be approved by SLSMC.

#### **Coverage**

- All statutory towns as per Census 2011 and towns notified subsequently would be eligible for coverage under the Mission.
- The Mission will support construction of houses upto 30 square meter carpet area with basic civic infrastructure.
- States/UTs will have flexibility in terms of determining the size of house and other facilities at the State/UT level in consultation with the Ministry but without any enhanced financial assistance from Centre.
- Affordable Housing Projects in partnership should have basic civic infrastructure like water, sanitation, sewerage, road, electricity etc.
- The minimum size of houses constructed under the Mission under each component must conform to the standards provided in National Building Code (NBC).
- The houses under the Mission should be designed and constructed to meet the requirements of structural safety against earthquake, flood, cyclone, landslides etc. conforming to the National Building Code (NBC) and other relevant Bureau of Indian Standards (BIS) codes.
- All houses built or expanded under the Mission should essentially have toilet facility.
- The houses constructed/acquired with central assistance under the Mission should preferably be in the name of the female head of the household or in the joint name of the male head of the household and his wife.
- Only in cases when there is no adult female member in the family, the house can be in the name of male member of the household.

#### **Implementation**

A beneficiary will be eligible for availing only a single benefit under any of the existing options i.e. Slum Redevelopment with Private Partner, Credit Linked Subsidy, Direct Subsidy to Individual Beneficiary and Affordable Housing in Partnership. It will be the responsibility of States/UTs Government to ensure that the beneficiary is not given benefit under more than one component of the Mission.

##### **5.10.2.4 Beneficiary Led Construction (BLC)**

Beneficiaries could avail the benefits of scheme component for New construction and Enhancement of existing house. Highlights of 'Beneficiary Led (Individual House) Construction' or Enhancement (BLC) Progress to be tracked through geo tagged photographs of the house.

**Eligibility for New Construction**

- Urban residents of EWS : Economically Weaker Section (annual income upto Rs 3 lakhs) & LIG: Low Income Group (annual income Rs 3 to 6 lakhs).
- Beneficiary families should not own a pucca house anywhere in India.

**For BLC Enhancement**

- Beneficiaries may be residing either in slums or outside the slums.
- Beneficiaries in slums which are not being redeveloped can be covered under this component if beneficiaries have a Kutcha or Semi-Pucca house

**Benefit**

- To individual eligible families belonging to EWS categories, to either construct a new house or enhance existing house on their own to cover the beneficiaries, who are not able to take advantage of other components of the mission.
- Such families may avail of central assistance of Rs. 1.50 lakhs for construction of new house or for enhancement of existing house under the mission.

**Why Enhancement**

- As per the Technical Group on Urban Housing Shortage (2012-17), 80% of households are living in congested houses.
- Congestion factor is defined as the percentage of households in which each married couple does not have a separate room to live.

**Provisions related to enhancement in PMAY(U) Guidelines**

As per clause 7.2 (b) of PMAY(U) guidelines:

"If the beneficiary has a pucca house with carpet area of up to 21 sq. mt. or a semi-pucca house, lacking in one of the facilities (i.e. room, kitchen, toilet, bathroom or a combination of any of these), it may be taken up for enhancement subject to ULB/State ensuring structural safety of the house and adherence to following conditions:

- The total carpet area after enhancement must not be less than 21 sq mt and must not be more than 30 sq mt.
- Enhancement shall mean addition of minimum carpet area of 9.0 Sq Mt into the existing house with pucca construction of at least one habitable room or room with kitchen and/or bathroom and/or toilet conforming to NBC norms.

## 5.11 STRATEGIES FOR HOUSING & INCLUSIVE DEVELOPMENT

The housing strategies adopted for the Master Plan – 2045 is based on the principles of densifying areas where there is ample infrastructure available and land is available for residential development. Through the development control regulations, the authority intends to promote mid rise development to optimize the utilization of land and infrastructure and increase the housing stock in the planning area at minimum infrastructure cost to the government. The authority has adopted the mixed use land use to promote residential use adjacent to the employment centers and in areas where the employment centers are absent or in areas far from the residential areas, the authority has tried to bring in employment generating landuses in an attempt to strengthen these areas and promote better housing options nearby for the local population.

Providing residence adjacent to the employment center safeguards the interest of Economically weaker sections who prefers to stay closer to work and avoid transportation cost. It is also advised through the Master Plan-2045 to promote affordable housing by earmarking land for residential projects for economically weaker sections of the planning area. Through Master Plan - 2045 the authority has identified

the new conurbation for 2045 which forms a continuous development with residential as a major land use to address the major housing requirements of the planning area. This also enables the merger of unplanned development taken place during the last few decades into main urban development of the planning area with proper circulation network and basic infrastructure.

## 6. TRANSPORTATION

Transportation plays a vital role towards the mobility of people as well as goods & services of a particular system. People are always mobile, and mobility is most important dynamic functions of a city which is having more bearing towards the economic development. In the absence of mobility due to improper transportation system the city functions would be paralyzed which may affect the dynamism of the system.

For the healthy growth, economic prosperity and improved living standards of any area, a high-quality transportation network is essential. In addition, transportation and landuse are to be integrated to achieve reduction in trip length, increase in public transport usage etc.

### 6.1 TRANSPORTATION NETWORK

#### 6.1.1 REGIONAL CONNECTIVITY OF NAGAON

Nagaon is well connected to North Eastern major cities like Guwahati, Jorhat, Tezpur through National Highways - NH 36, NH 37 and State Highways. Nagaon bypass highway is the part of Asian Highway AH-1, which further connects it to countries in Asia like Cambodia, Thailand on east.

##### 6.1.1.1 Interstate Connectivity (From Nagaon)

Nagaon is connected to major cities of Assam and other states of India by road and rail. Table 85 manifest the time taken (in hrs.) and distance (in km) from Nagaon to important cities of Assam and other states by different modes of transportation.

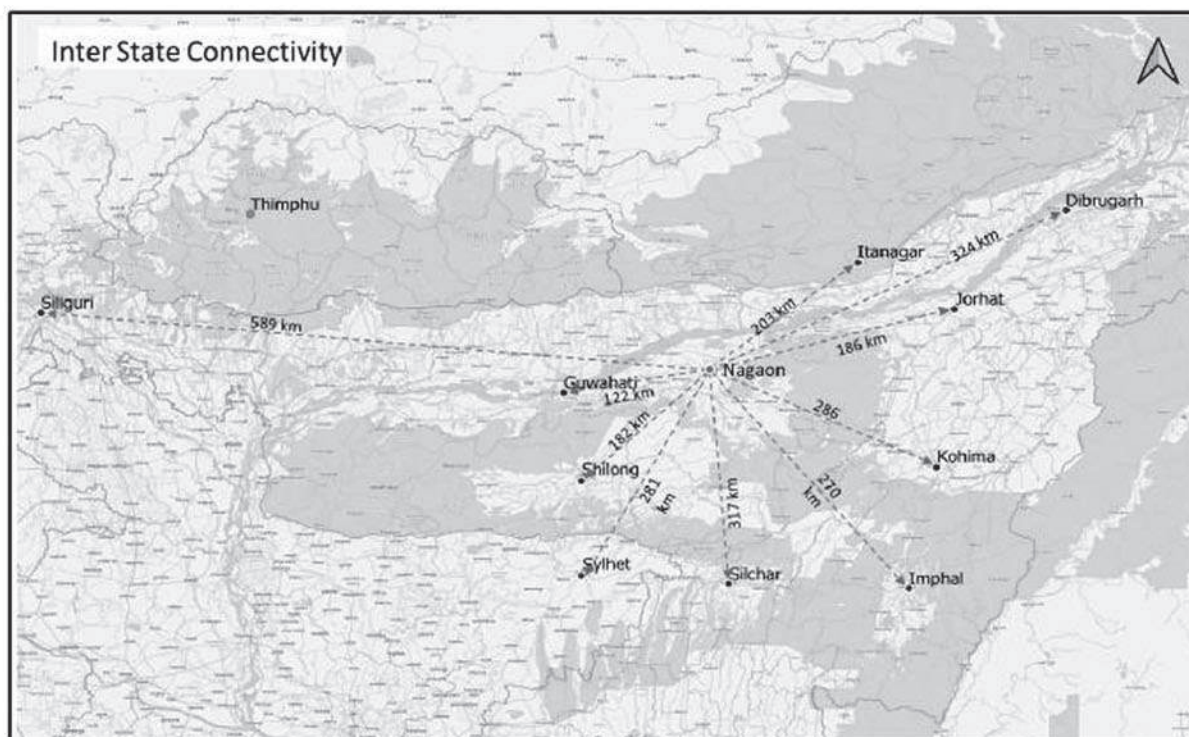


Figure 80: Interstate Connectivity from Nagaon district

Guwahati is the nearest major city from Nagaon which covers minimum distance i.e. 130 km compare to other important urban centers. Other important cities of different states like Kohima, Imphal and Sylhet are accessible from Nagaon which takes approx. 6-10 hrs by road. Siliguri is far away from Nagaon that takes 11 hrs to reach by road journey, however other modes of transportation is not available in this case. Figure 83 represents geographical connectivity of Nagaon to other state regions.

Table 85 Interstate modes of transportation from Nagaon

Connectivity from Nagaon	Distance (km)	Time (hrs.)	
		By Road	By Rail
Shilong	182	4 hr	-
Silchar	317	9 hr	9 hrs
Imphal	270	10 hr	-
Kohima	286	6 hr	-
Jorhat	186	4 hr	-
Dibrugrah	324	8 hr	17 hrs
Itanagar	203	5 hr	-
Siliguri	589	11 hr	-
Guwahati	122	2 hr	3 hrs

(Source: Compiled by Consultants)

### 6.1.1.2 Intercity Connectivity (From Nagaon)

Nagaon has the intercity connectivity by road as well as by rail. The table no. 86 below shows the various modes of transportation and its connectivity with the nearest cities like Samaguri, Roha, Kampur and Dhing. The minimum connecting distance is 12 kilometers from Rupahi to Nagaon and maximum is 30 kilometers from Charaibahi.

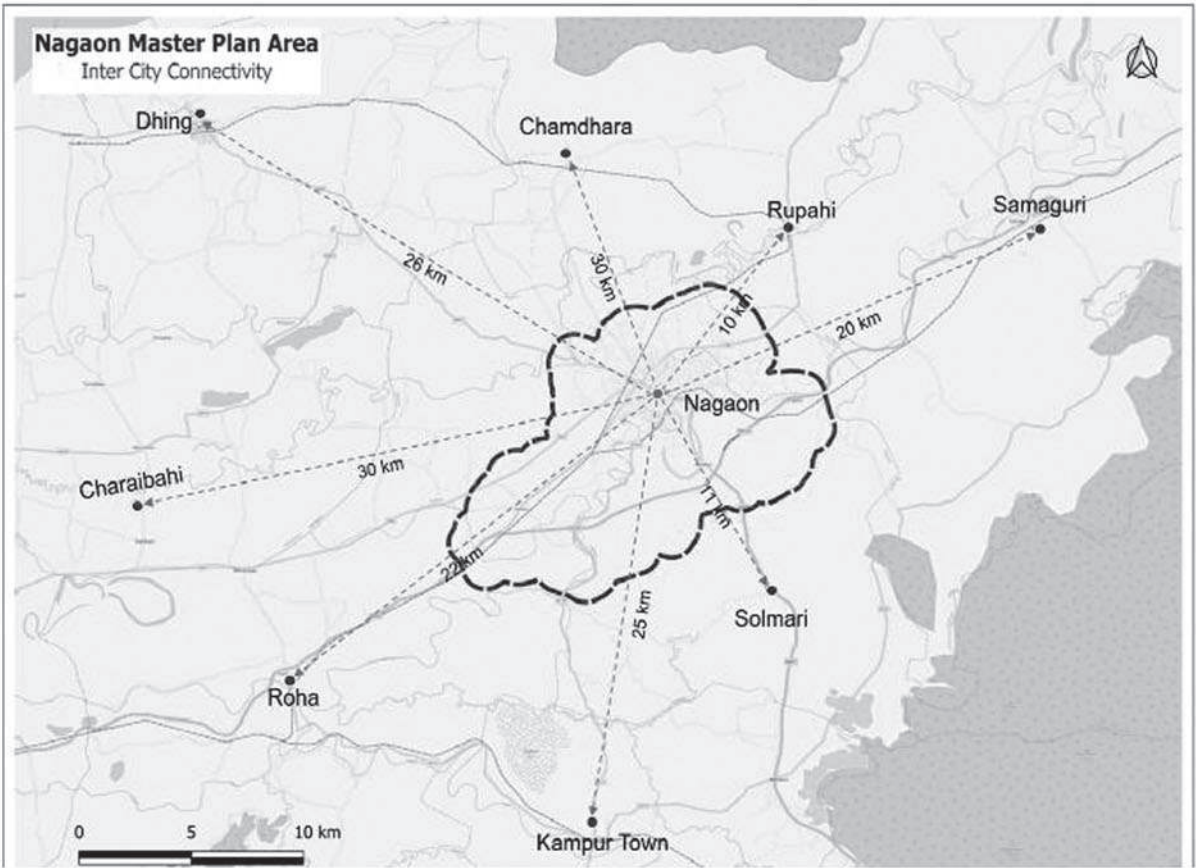


Figure 81: Intercity connectivity

Table 86 Intercity modes of transportation from Nagaon

Urban centres from Nagaon	Distance (km)	Duration (in hrs)	
		By Road	By Rail
Chamdihara	15	50 min	-
Rupahi	12	21 min	-
Samaguri	21	33 min	30 min
Solmari	13	21 min	-
Kampur town	29	41 min	45 min
Roha	23	31 min	-
Charaibahi	30	42 min	-
Dhing	28	55 min	-

(Source: Compiled by Consultants)

### 6.1.2 RAILWAYS

Nagaon is connected by Indian Railways network. There are several trains plying between Guwahati and Nagaon. Important stations of the town are Nagaon and Haibargaon.

The North- Frontier Railway branch line connects Nagaon town with the rest of the country via Chaparmukh. Nagaon town has got 2 railway stations namely Haibargaon Railway station and Nagaon Railway station. One line from Guwahati via Chaparmukh to Haibargaon which line is extended up to Dhing-Mairabari and another line from Guwahati via Chaparmukh-Nagaon to Silghat. Presently 4 nos. of passenger trains and 2 nos. of goods trains has been running daily to and from Nagaon station and 4 passenger trains runs daily to and from Silghat. The following table shows the movement by railways and income generated at Haibargaon station. Haibargaon Railway station has the computerized reservation facility.

### 6.1.3 AIRWAYS

The nearest airport is Salonibari Airport, Tezpur located at a distance of 80 Km. Lokapriya Gopinath Bordoloi International Airport, Guwahati (130 Km) has a good flight connectivity with all major destinations throughout the country. Helipad facility has been there in the city. The roads of the town are in a very critical stage. It lacks in infrastructure; one cannot differentiate between main road and secondary roads; wide carriage way but did not have footpaths, and most of them are encroached and taken over by shopkeepers, also did not have drainage facility along the road length and majority have no system of street lighting.

### 6.1.4 EXISTING ROAD NETWORK

To understand the demand-supply gap and accordingly to assess the improvement requirements of the study area a detail analysis of existing transport facility characteristics is necessary. As existing traffic and travel characteristics introduces the transport system demand, existing transport facility characteristics summarize the system supply. Appreciation of road network characteristics is important to assess existing capacity of the roads, identify the constraints, if any, and assess the potential for improvement/up gradation of the road network to cater the existing and projected traffic demand. For the present study, a detailed inventory of major road network has been carried out. The road network inventory data was analysed in terms of parameters like length of road, carriageway, width of footpath / shoulder, no. of lanes

#### 6.1.4.1 Primary Road Network

Nagaon is mainly connected to other important destinations by NH-37, NH-36, SH-3, SH-18, and SH-47. National Highway-37, in broad context, is a primary NH which connects States Assam and Arunachal Pradesh and contributes majorly in Nagaon economic development by its connectivity to important trading nodes. In Assam, NH-37 starts from Goalpara and ends at Roing (Arunachal Pradesh) covering total distance of 170 km. NH-37, within NMPA traditionally famous as Nagaon Morigaon road, enters from Garmur Satra gaon from West and bypasses Nagaon urban agglomeration through Nam-pathari and Maz-pathari villages finally merges with Old AT road and heads towards Kachari gaon in East. Old NH splitting from NH-37 enters Nagaon Municipal Board area from Bebejia in west by connecting Kumargaon, Sensuwa and Khutikatia finally ends at SH-3 near Haibar bazar junction. Another important highway is NH 36, which links Nagaon to southern urban centres and towns like Lumbding and Doboka by splitting from NH-37 at Borghat round about point. Other than NH, SH-3, SH-18 and SH 47 connects Nagaon to nearby important towns and urban nodes.

#### 6.1.4.2 Secondary Road Network

Nagaon Urban Area is connected to its adjoining regions mainly via three **Major District Roads** and seven **Major City road**. They are:

1. Bebejia Dakshinpat Road (**MDR**) (SH-3 to SH-18 link road)
2. Singari Juria Road (**MDR**) (SH-47 to Singari-Juria road)
3. Nagaon – Juria Road (**MDR**) (Nagaon to Juria road)
4. Nagaon – Lumbding Road (Civil Hospital Gate - Borghat Point road)
5. ADP Road (Civil Hospital Gate to SH-3 Laokhowa road)
6. MD Road (Haibargaon Bazar road to SH-3 Laokhowa road)
7. MG Road (DC Office to ADP Road)
8. AT Road (Haibarbazar road to NH-37 (Uriagaon Chowk))
9. RK Road (Civil Hospital gate to Police Reserve Ground)
10. GNB Road (AT Road to Police Reserve Ground)

#### 6.1.4.3 Tertiary Road Network

The tertiary road network consists of all the city roads and village roads and link roads which connect the rest of the settlements in the Planning Area. These roads connect the settlements along various contours and hilly undulating terrain

Nagaon district is relatively well placed is road infrastructure as compared to another district of Assam. As the Nagaon district is situated in the middle part of Assam the town is also well connected by roads linking with all the major tower of Assam. The

National Highway 36 and 37 passes through the heart of the town. The radial roads are primarily the major roads which connect the regions and the other important town with Nagaon.

As per record of Nagaon Municipal Board total road length is 82.5 km. out of which 50.3 km bituminous, 26.4 km. graveled and 5.8 km. earthen road. The NH-36 passes through the heart of the town and it is calculated about 8% of the total length. The river Kalong and its off streets have created the problem of linking between the two parts of the town. Moreover, in many cases the roads are not uniform with throughout the length which obstructs traffic from free flow.



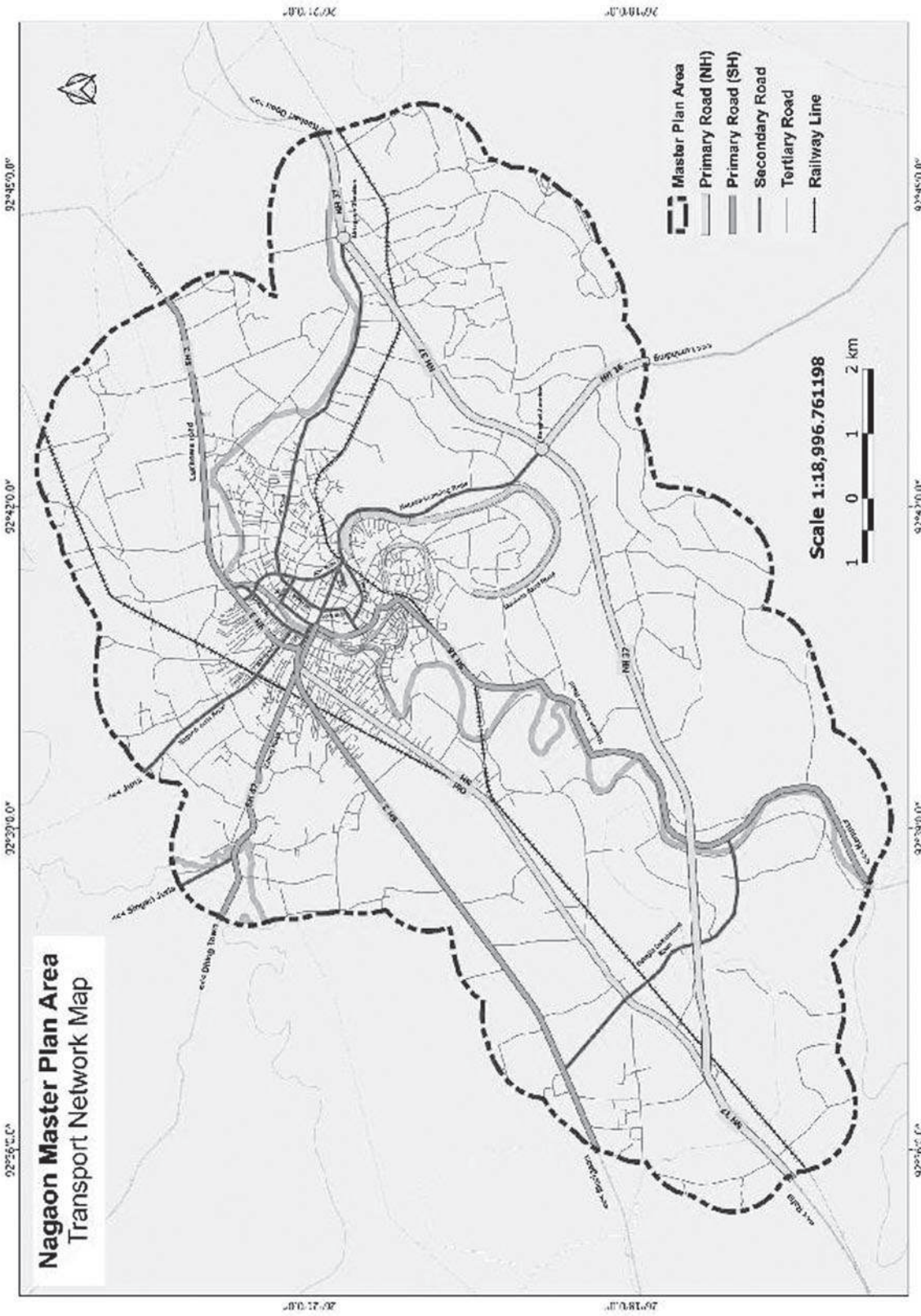


Figure 82: Transport network of Nagaon MP area

### 6.1.5 ROAD INVENTORY

Road network of a city gives idea of the hierarchy of roads present in the city. The hierarchy of city is based on different widths of the roads. It also tells that which road perform which type of function like arterial road, sub-arterial road, collector streets or access roads. It is important to identify higher hierarchy roads as they are major transit corridors of any city. Road inventory is depicted in the figure 86 which includes all the highways, major roads, minor roads, private/public roads, village roads etc. The whole network shows the road connectivity in the city.

#### 6.1.3.1 Road Hierarchy

The highways which pass through the Planning Area connects Nagaon to nearby cities. Except Highways and few other roads, majority of the roads in the Planning area are having a right of way less than 12m. For example, the roads running across key commercial areas such as Bara Bazar are too congested, and this leads to increased travel time within the city and deterioration in quality of life in these important nodes of the planning area.

The roads in the Planning area are

shown in the fig 65 in different categories with respect to their RoW. The RoW in the planning area varies from 6 m to 33 m. It can be observed from the fig. 83 that some of the important roads such as SH-3 do not have a uniform right of way. In Assam, SH-3 has a right of way of 20 m but reduces to 18 m as it enters in Nagaon MB area near Haibar Bazar Road to MD Road. It further reduces the width from 18 mt to 15 mt from MD Road to Uriagaon Junction. This patch of SH-3 is generally

observed with encroachment by unauthorized parking of HMTVs on both sides of road resulting in reduced accessible width of carriageway only by 8 m. The NH-37 and NH-36 have right of way of 25 mt. through NMPA. SH-18, runs through Nagaon city central area in parallel to Kolong river is having only 7.7 mt of RoW. However, Old NH in NMPA has RoW of 20 mt which increases to 33 mt as it enters Nagaon MB area near Sandapur Gaon but consist carriageway up to 12 m only.

#### 6.1.3.2 Major Regional Roads National Highway (NH)

National Highways passing through the Nagaon Planning Area along with its length, width and number of lanes are presented in table 87. NH-37 enters from West at Garmur Satra gaon in NMPA further meets NH-36 at Borghat junction and heads towards

Kachari Gaon in East through Uriagaon junction. Another is the old NH, formerly known as Nagaon Morigaon road starts from junction near Dimow by splitting from NH-37 it ends to SH-3 at Haibar bazar road junction. Additionally, NH-36 links Nagaon to southern urban

centres and towns like Lumbding and Doboka by splitting from NH-37 at Borghat round about point.

Table 87 List of National Highways passing through Nagaon planning area

Sl no.	Name of the road (NH)	Type of road	Length of the Road (km)	R.O.W (m)	Shoulder+ footpath width for one side (m)	No. of lanes
1.	Nagaon Morigaon road	NH 37	11	25	2.5	4
2.	Nagaon Lumbding road	NH 36	6.5	25	2.5	4
3.	Garmur Satra to Sandanpur road	Old NH	16	20	4	2
4.	Sandanpur to Haibar Bazar road	Old NH	1	33	21	2

Source: Compiled by Consultants

**State Highway (SH)**

The table 88 describes the State Highway passing through Nagaon Planning area with parameters like width of carriage way, its length and number of lanes. The SH-3 is one of the prime roads which enters NMPA city centre from west and by criss-crossing Nagaon from Upper north portion it finally heads towards Laokhowa in east. The total length falls under NMPA of SH-3 is 16 km where certain width variation observed throughout the length. SH-47 is another important state highway which connects Nagaon from its city centre to nearby Northern towns like Dhing and the total length of falls within NMPA is 5 km. SH-18, runs through Nagaon city central area in parallel to Kolong river is having only 8 mt of RoW.

Table 88 List of State Highway passing through Nagaon planning area

Sl no.	Name of the road (SH)	Type of road	Length of the Road (km)	R.O.W (m)	Shoulder+ footpath width for one side (m)	No. of lanes
1.	Lathabori to Haibar Bazar	SH 3	9	20	4	2
2	Haibar Bazar. To MD road	SH 3	2	18	2.5	2
3	MD to Uriagaon Junction	SH 3	5	15	1.5	2
4	Nagaon Kampur	SH 18	8	8	1	2
5	Dhing road	SH 47	5	12	2.5	2

(Source: Compiled by Consultants)

**6.1.3.3 Major Roads**

The major roads are the means to serve and connect all the areas in the city and to villages. As per IRC, the roads which are having road width greater than 10 m are counted as Major roads. Following are the roads which fall under this category as per IRC guideline.

Table 89 List of Primary roads of Nagaon MP area

Sl no.	Name of the Roads (Major Roads)	Junction	Length of the Road (km)	R.O.W (m)	Width of the C.W. (mt)
1.	Bebejia Dakshinpat	Dimow Charaili	1.7	10	7
2.	Singuri Juria	Dhing – Singuri juria	3.6	10	7
3.	Nagaon Juria road	SH-47- Juria road	3	10	7
4.	Haiborgaon Bazar road	Haiborgaon junction	1	15	12
5.	Medical road	Decappty junction	1	10	8
6.	GNB road	GNB - AT road	1	10	8
7	ADP Road	ADP – old AT road	1.2	10	6
8	MD road	MD road- Nagaon Morigaon road	1.5	10	5.1
9	AT Road	MG road – BM road	1.5	15	8
10	Nagaon Lumbding	Nagaon-Lumbding Chairali	5	15	7
11	MG road	Ramkrishna road- MG road	1.5	10	6.5
12	RK road	RK road- Nagaon Lumbding road	1	10	6.5
14	Tarun Phukan	MD road -Tarun phukan road	5	10	7

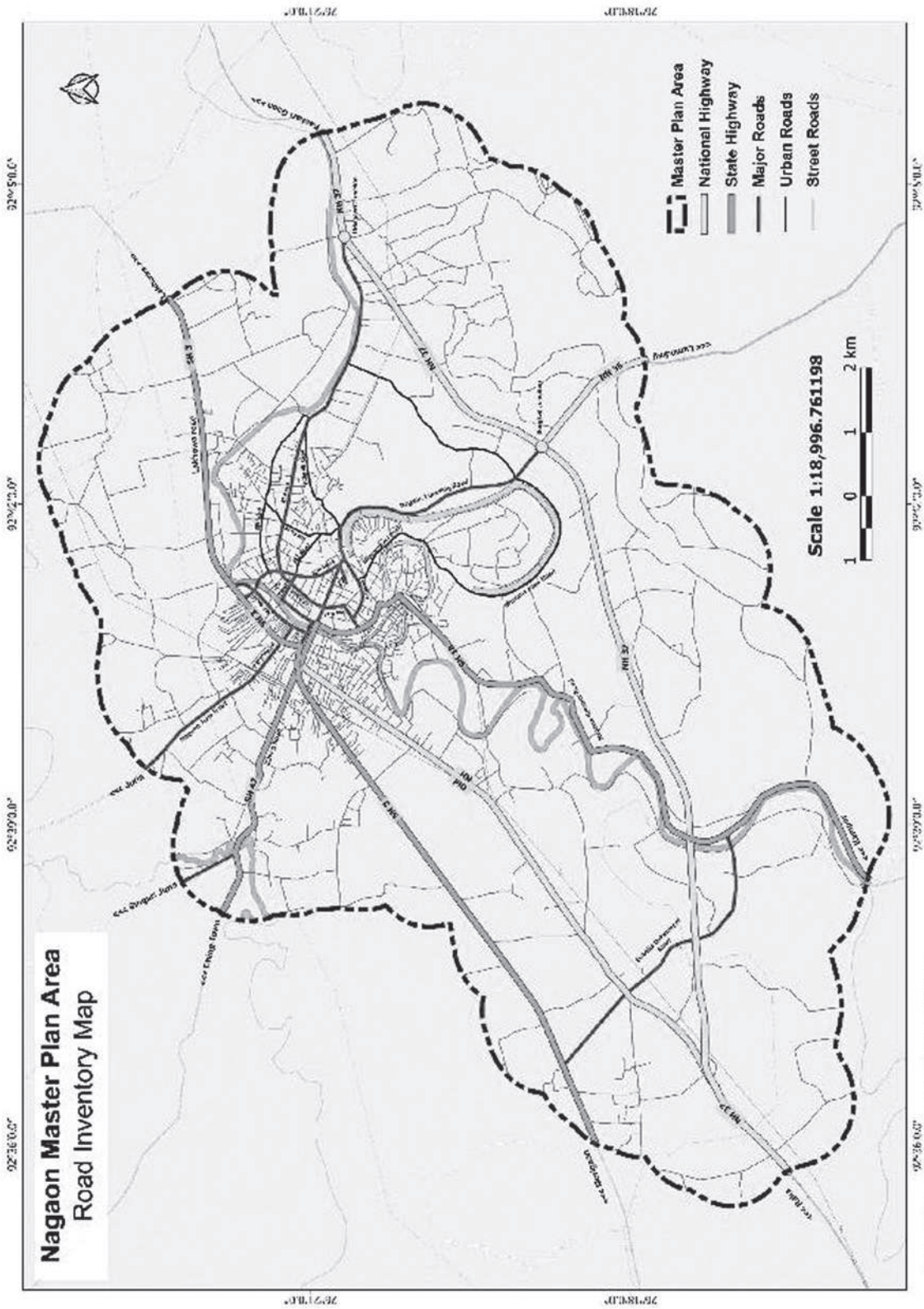
**6.1.3.4 Urban Roads**

All rest road network including street road, village road and other roads and counted as tertiary roads. Below in table 90 mentioned are the roads fall under this category.

Table 90 List of tertiary roads within NMPA

SI no.	Name of the Roads	Junction	Length of the Road (Km)	R.O.W (mt)
1.	Dr. Huze road	ADP road -DR. Huze road	0.68	9.8
2.	Jail Road	Jail road – Police Reserve road	0.59	4
3.	SM Road	SM road – Old AT road	0.61	5.6
4.	Kecha Ali Road	Nagaon Lumbding – Kecha ali road	1.2	4.7
5.	Nagaon Nonoi Road	Nonoi road – Maulana Azad road	5	5.7
6.	Maulana Azad Road	SK Bhuyan road – Maulana Azad road	0.7	9.3
7.	BB Road	Nagaon Lumbding road -BB road	0.17	6.1
8.	Bishnu Rabha Path	Polytechnic – Bishnu Rabha path	1.3	4





## 6.2 VEHICLE REGISTRATION

Vehicle registration is essential to establish link between a vehicle and an owner or user of the vehicle. In the table 91 given below, categories of public and private vehicles along with their number is mentioned. The information has been provided by the District Transport Office, Nagaon. The categorization has been done based on transport and non-transport use. Further in table 91, the number of vehicles is depicted in LMV (light motor vehicles) and HMV (heavy motor vehicles).

Table 91 Growth of first moving vehicle

Year	Truck	Light Vehicle			Bus	Taxi			Non-transport vehicles		
		3 wheeler	4 wheeler	Total		Four wheeler	Three wheeler	Total	Two Wheeler	Four wheeler	Total
2006-2007	97	119	313	529	7	57	271	328	4251	429	4680
2007-2008	63	117	205	445	17	72	301	373	3600	582	4282
2008-2009	65	101	146	247	2	203	345	548	3925	682	4607
2009-2010	84	204	113	317	2	305	606	911	5414	1091	6505
2010-2011	156	541	230	771	20	333	872	1205	8325	1317	9642
2011-2012	153	673	174	847	21	406	656	1062	9464	2105	11569
2012-2013	81	615	89	704	30	403	467	870	9535	2181	11716
2013-2014	92	283	131	414	77	340	621	961	11417	2486	13903

(Source: DTO, Nagaon 2006-13)

Table 92 LMV and HMV

Year		2014-2015	2015-2016	2016-2017	2017-2018	2018-2019
Trucks	Medium	-	-	2	-	-
	Heavy	53	56	64	142	158
L.C.V. Goods	Four wheeler	614	799	1075	1546	1830
	Three wheeler	158	133	173	128	134
	<b>Total</b>	<b>772</b>	<b>932</b>	<b>1248</b>	<b>1674</b>	<b>1964</b>
Bus	Contract carriage	47	71	28	50	36
	School buses	2	7	3	15	7
Taxi	A.A.T.T.	47	33	90	6	37
	Local Taxi	137	84	58	191	267
	Auto rikshaw	719	484	778	834	1077
	<b>Total</b>	<b>903</b>	<b>601</b>	<b>926</b>	<b>1031</b>	<b>1381</b>
Non-Transport Vehicles	Two wheeler	13367	13911	15264	23754	26163
	Four wheeler	2804	2860	3475	4232	4560
	<b>Total</b>	<b>16171</b>	<b>16771</b>	<b>18739</b>	<b>27986</b>	<b>30723</b>

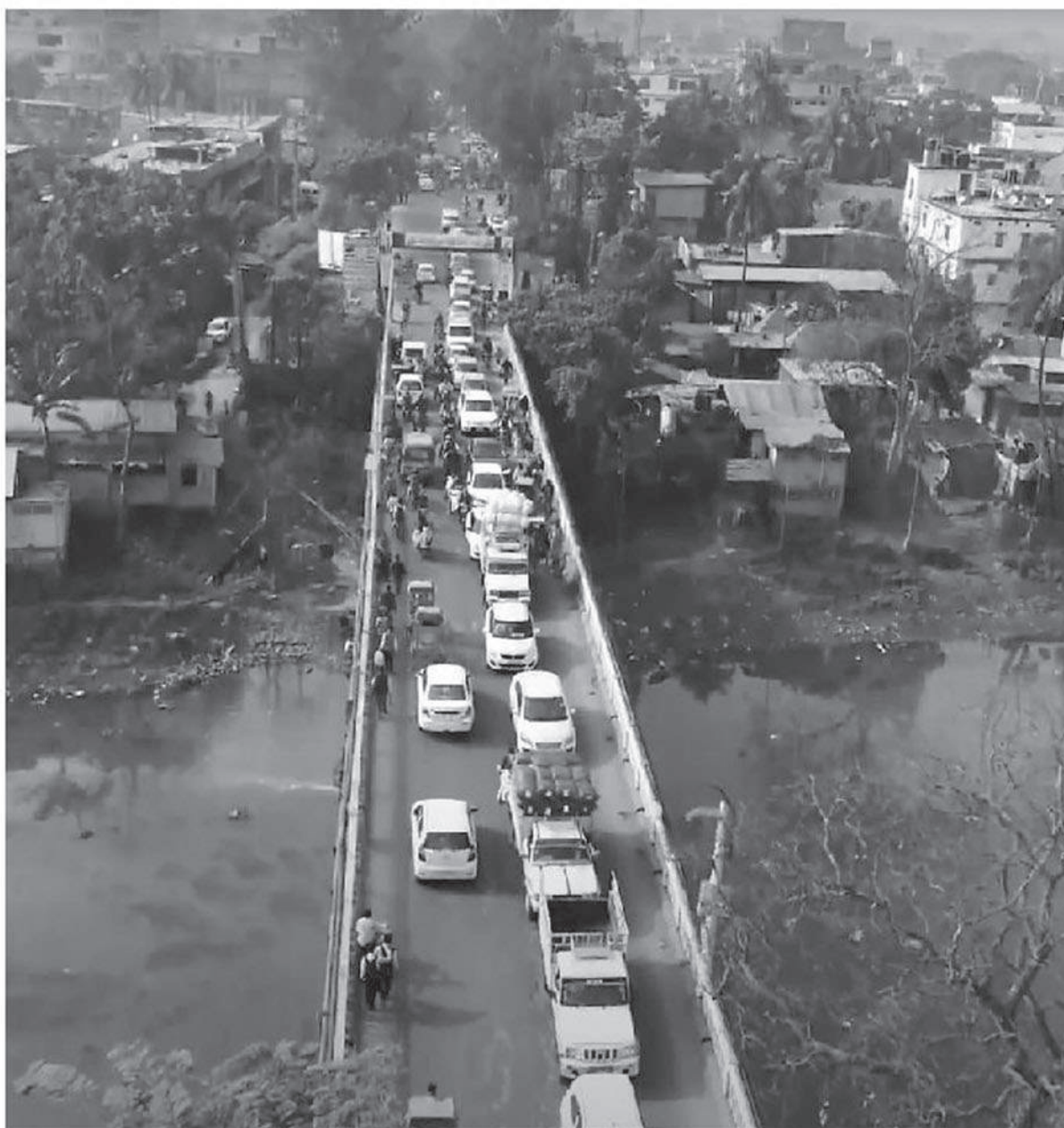
(Source: DTO, Nagaon 2014-19)

It is observed that Non-Transport vehicles are more than the number of Transport vehicles in Nagaon urban areas. The commodities mostly moved in these regional linkages are vegetables and consumption goods (18%-19%) followed by building materials (12%-13%). Many the freight vehicles are observed to be empty (nearly 51%-52%). This indicates a poor state of freight logistics in operation for the movement of goods – further increasing the cost of travel and lowering the demand for freight movement.

## 6.3 PUBLIC TRANSPORT

### 6.3.1 PUBLIC TRANSPORT AND ROUTES

The town has both railway and bus terminus which increases the chances of trade and commerce with other towns and free flow movement of people from one place to another. Public transport points as Railway Stations, ASTC Bus terminal, Bus Stand, Bus Stops, Auto stand, and taxi stands are mentioned in the fig 69 below.





### 6.3.1.1 Bus Terminals

The Assam State Transport Corporation (ASTC) bus depot operates in the city to connect to nearby cities of the district and other major cities of the state, like Nagaon, Guwahati, Digboi. Volvo air-conditioned bus service is also functioning between major cities like Guwahati, Tezpur and Dibrugarh.

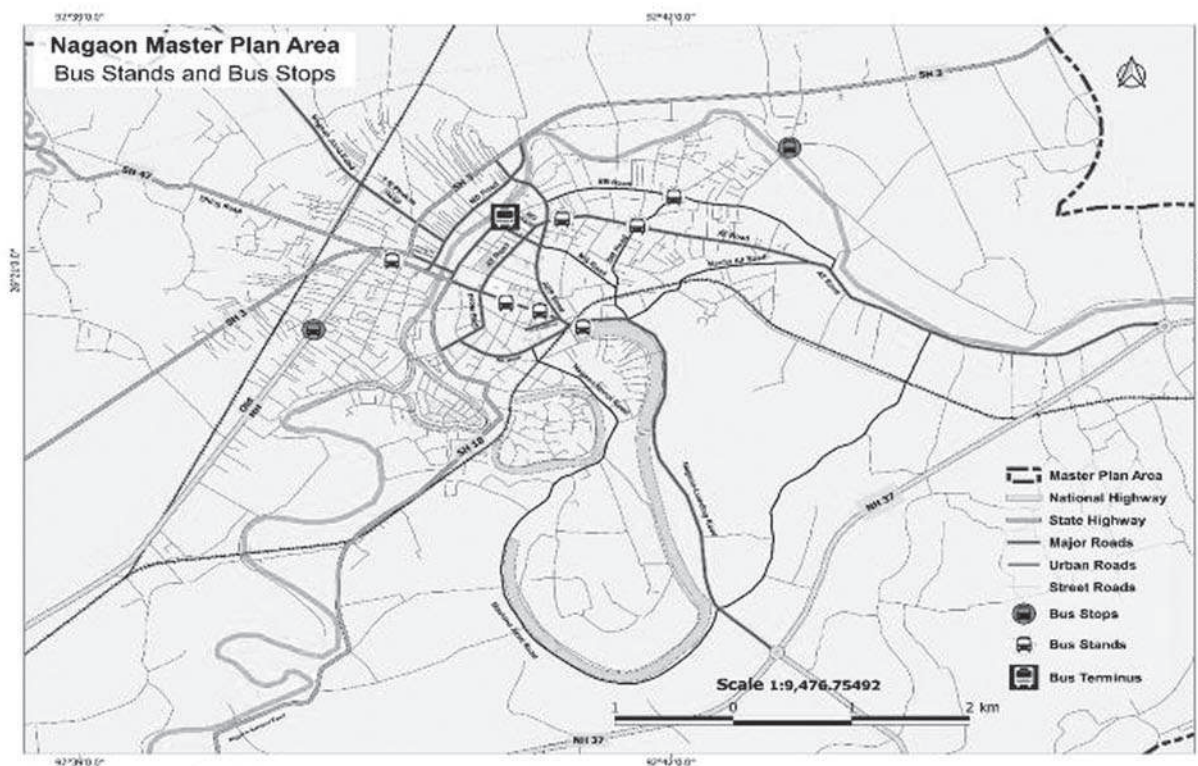


Figure 85: Bus stands in NMPA



The main roads are defined transport corridors in the city. Therefore, primary emphasis should be on consolidation of existing networks and then expanding it; bus depots proposed at suitable intervals along with the other infrastructure for the bus system. Existing bus stops lacks the same. In the integrated transport network concept, terminals are very important components as they enable integration between

the different modes of the system. Expect the existing A.S.T.C bus terminus located in the heart of the town, the other public and private Bus stands are most temporarily located at some busy roadsides which causes the traffic congestion and traffic. The bus stands located at different places of the town and their characteristics are as given below



The road transport system is dependent upon Buses/minibuses. Following are the bus routes for local and regional passengers. There are three bus terminals in the city, one private and two government bus terminals. The table 93 below shows the name and location of all the bus terminals

Table 93 Bus stations in Nagaon city

Terminal Centre	Location	Observations
<b>A. Inter city</b>	<b>Bus station</b>	
<b>1. Passenger</b>	A.S.T.C bus station	Centrally located, parking space is not sufficient. Waiting side, toilet facilities should be extended. Passengers guest house facilities should be provided.
	North-East bus station (Near Manalisha Hotel)	Located at Haibargaon market area campus of the bus station is very narrow, so all the necessary facilities should be improved providing modern technology through proper planning.
	Nagaon- Dhing bus station (near Dhing rail gate)	Unplanned. Waiting shed and toilet facilities are nil. Roadside parking.
	Green Valley Bus Stand (near Sadar Thana)	Very congested, Unplanned. Always overcrowded. No waiting shed toilet facilities are very negligible.
	Dara Travels (709 bus stand)	Unplanned. No waiting shed and toilet.
	Samguri & Jakhalahandha (Tata magic stand)	Always overcrowded. No waiting shed and toilet facility. Roadside parking
<b>B. Intra city</b>	<b>Railway stations</b>	
	Haibargaon railway station	Railway station should be developed providing all modern facilities. Platform awaiting shed should be upgraded. Guest house facilities should be established.
	Nagaon railway station	Platform is open. There is no waiting shed on the platform. Toilet and sanitation facilities are very negligible. Booking and Reservation counters should be opened. Height of the platform should be raised. At all, the platform is required to be upgraded providing all modern facilities.

### 6.3.1.2 Railway Station

Nagaon has three railway stations and that has been mentioned in the table 94 below with the location. These stations are serving both passenger transportation as well as Freight transportation.



Table 94 Railway station in Nagaon master plan area

Railway Station	Location
Nagaon Railway Station	Pani gaon, Chota Hiabor, Nagaon
Haibor Gaon Station	Haibor gaon, Nagaon
Babejia Railway Station	Tukulai Bebejia, Nagaon

(Source: Compiled by Consultants)

**6.3.1.3 Major Bus Stop**

The major bus stop in the city has been mentioned in the table 95 described below. This bus stop is in the Master plan area.

Table 95 Major Bus Stops of Nagaon MP Area

Bus Stop	Location
ASTC bus Terminal	BM Road, Nagaon

(Source: Compiled by Consultants)

**6.3.1.4 Freight Zones & Logistics**

Table 96 Freight zones and logistics

Bus Stops/Terminus	Logistics	Communication Hubs	Railways
- ASTC, Nagaon	- Inland World Logistics - Ekart Logistics - Myntra Logistics	- All India Radio	- Nagaon Junction - Haibargaon Junction
- Marigaon Bus Stand - Guwahati Bus Stand - Lanka Bus Stand - Dara Bus Stand - Market Bus Stand	- Delhivery Courier - Akash Ganga Courier - Flyking Courier - Aramex Courier	- BSNL Assam Telecom Circle, Nagaon	- Bebejia Junction - Senchoa Junction
- Natun Bazaar Bus Stop - Soi Ali Bus Stop - Panigaon Bus Stop - Diphalu Tiniali Bus Stop - Lakhinagar Chariali Bus Stop			
- Chakalaghat Chariali Bus Stop - Bebejia Chariali Bus Stop - Dakarghat High School Bus Stop			

